Annexure III

K/W-3

BANGALORE WATER SUPPLY AND SEWERAGE BOARD

CAUVERY BHAVAN, KEMPEGOWDA ROAD,
BANGALORE – 560 009

TENDER FOR THE WORK OF

Work of providing and laying of new 450 mm dia DI pipeline in place of 450 mm dia CI pipeline along RHS of Hare Krishna road to Mourya Hotel Junction coming under LLR S/stn of AEE SW-1 sub division.

(Through KPPP portal only)

http://www.kppp.karnataka.gov.in

Office of the Executive Engineer,
BANGALORE WATER SUPPLY & SEWERAGE BOARD
SOUTH-WEST-1 DIVISION,
Kapila Bhavan, 11th main, 35th cross,
4TH T BLOCK, JAYANAGAR, 560041
Telephone – 080 22945196

mail – eesw@bwssb.gov.in

TENDER REFERENCE :	:	BWSSB/EESW-1/TO/PB/1208/24-25 Dated:29.07.2024	
PERIOD OF SALE OF TENDER DOCUMENT	:	From: 31.07.2024	To: 14.08.2024
LAST DATE FOR SALE OF TENDER DOCUMENT	:	14.08.2024	
LAST DATE AND TIME FOR RECEIPT OF TENDERS	:	14.08.2024 @ 16.00 Hrs	
PLACE OF OPENING OF TENDER	:	Office of the Executive Engineer, South West-1 Water Supply & Sanitary Division, BWSSB, Kapila Bhavan, 11th main, 35th cross, 4th T block, Jayanagar, Bangalore-560041.	
TIME AND DATE OF OPENING OF TENDERS	:	16.08.2024 after 15.00 Hrs	
ADDRESS FOR COMMUNICATION	:	Office of the Executive Engineer, South West-1 Water Supply & Sanitary Division, BWSSB, Kapila Bhavan, 11th main, 35th cross, 4th T block, Jayanagar, Bangalore-560041 Telephone – 080 22945196 mail – eesw@bwssb.gov.in	

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SECTION 1:

BANGALORE WATER SUPPLY AND SEWERAGE BOARD

Office of the Executive Engineer,

BANGALORE WATER SUPPLY & SEWERAGE BOARD

SOUTH-WEST-1 DIVISION,

4TH T BLOCK, JAYANAGAR, 560041

Telephone – 080 22945196

Email:eesw@bwssb.gov.in Telephone: 080- 22945196

INVITATION FOR TENDER

(ONLY THROUGH KPPP PORTAL) www.kppp.karnataka.gov.in

IFT No: BWSSB / EESW -1/TO/ PB / 1208 /2024-25

Date:29.07.2024

For and on behalf of the Bangalore Water Supply and Sewerage Board, SHORT TERM **ITEMWAR TENDER is** invited through KPPP process with tender procedure in line with Rule 28 of the KTPP Act by the Executive Engineer, Water Supply and Sanitary Division (South-West)-1, 4th block, Jayanagar, Bangalore-560011 for the following work from registered Agencies of appropriate class as indicated against each work of **BWSSB/KUWSDB/KPWD,** etc. Who are having adequate financial resources, past experience in similar nature of work possessing valid GST registration. The Board keeps the right of acceptance or rejection of any tender without assigning any reasons.

The Tenderers are required to pay the Earnest Money Deposit only through e-procurement portal only using any of the four modes.

1. (1)Credit Card (Online Payment) (2) Direct Debit Using Internet Banking (Online Payment) (3) Remittance at the Bank Counter - Challan (Offline Payment) (4) NEFT (National Electronic fund transfer) (Offline payment). The details regarding their capability to undertake the tender (as detailed in ITT Clause 4) and the price tender shall be uploaded in the website. Technical details will be opened on the date and time mentioned in ITT clause 5 and evaluated. The price tender of the Tenderer, who is found to be qualified to execute the tendered works, will be opened on the date notified later. The Tenderers are advised to note the minimum qualification criteria specified in Clause 3 of the Instructions to Tenderers to qualify for award of the contract.

2. Tender documents may be downloaded from www.kppp.karnataka.gov.in website only. Interested tenderers may obtain further information at the same address.

3. Additional information related to KPPP process can be obtained through the above mentioned website or contact KPPP helpdesk No.**080-2550 1216 / 2550 1227**. The electronic tender comprising Technical and Financial bids will be operated as **Two Cover Tender system.**

4. Bidders can access tender documents from 31.07.2024 to 14.08.2024 those are mentioned in different sections in the bid document in to electronic tender on the website. Scanned documents those are required to be furnished as per Section 2, 3 & 4 of the bid document shall be submitted through KPPP.

5. The Tender processing fee once paid will not be refunded.

6. The Last date and time for Receipt of tenders will be on 14.08.2024 upto 16:00Hrs **and the date of opening of tender will be on 16.08.2024 after 15.00 Hrs.**

TABLE

KW-III

Sl. No	**Name of work**	**Amount put to tender**	**Earnest Money Deposit @ 2%**	**Tender Processes sing fee**	**Period of Completion of work**	**Eligibility Class of Contractor**
1.	**Work of providing and laying of new 450 mm dia DI pipeline in place of 450 mm dia CI pipeline along RHS of Hare Krishna road to Mourya Hotel Junction coming under LLR S/stn of AEE SW-1 sub division.**	Rs.79,36,144/- (Exclusive of GST)	Rs.1,87,293/-	**As KPPP portal**	5 Months	CLASS –I Civil Contractor

The Eligibility criterion for the above work is as follows:

- The tender is based on TWO Cover System.
- Contractors should have Civil Contractor registration in BWSSB or KPWD/KUWSDB, etc
- The Tenderer Should have a in the last 5 years period achieved in atleast two financial years an average turnover of not less than estimated cost of the respective works (Profit & loss account, Balance sheet certified/Audited by chartered accountant).i.e.,Rs.93.64 Lakhs
- The Tenderer should have satisfactorily completed one similar work to an extent of 50% of the cost of the respective works. i.e.,Rs.46.82 Lakhs.
- Liquid assets and or availability of credit facilities usually 30% of the amount of contract i.e., Rs.28.09 Lakhs.
- The tender should have executed in any one year the following minimum quantities of works usually 80% of the annual requirement of 450mm dia & Above DI water pipe line = 644 Rmt
- **Assessed available tender capacity is (AxNx2.5 - B) should be greater than 93.64 Lakhs**
- **Amount put to tender is exclusive of GST.**
- **Rates quoted shall be exclusive of GST**
- Form of tender is mandatory to upload in KPPP portal.

7. The successful bidder would be required to give performance **bank guarantee of 5%** of the contract amount plus additional security for unbalanced bid amount from a Nationalized / Scheduled Indian Bank, with

jurisdiction at Bangalore as specified, towards guarantee for completion of work within the stipulated period.

8. Applications / requisitions from joint venture Firms are not acceptable.

9. Bangalore Water Supply and Sewerage Board (BWSSB) reserve the right to cancel or annul the entire or part of this process of invitation at any time without assigning any reason.

10. For any additional information regarding the above tender, the firms who are interested to quote, may contact office of the undersigned at the office address given below on all working days during office hours (10:30hours to 17:00 hours).

11. List of documents to support qualification of bidder is to be uploaded to the e-procurement website www.kppp.karnataka.gov.in

12. Bidders shall submit offers that comply with the requirements of the bid document, including the basic technical design as indicated in the drawing and specifications. Alternatives will not be considered. The attention of the bidders is drawn to clause 23 regarding the rejection of the bids, which are not substantially responsive to the requirement of the bid document.

13. Other details can be seen in the tender documents.

14. The works to be executed in accordance with the contract documents and to carry out all the works as per the guidelines in the "Safety Manual for construction and maintenance of UGD Lines and septic tanks in Urban Areas - 2013". Any lapses in following the safety guidelines, the contractor/agency/firm will be held solely responsible.

15. Cutting Road Surfaces for Pipe line trenches should be executed using machineries only.

Further details may be had from this office during the office hours on all working days.

Corrigendum/Addendum/Modification/corrections, if any, will be published in the Web site only.

Executive Engineer
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavana, 11th main,
35th cross, 4th T block, Jayanagar,
Bangalore-560041.
Tel No.080-22945196 mail:eesw@bwssb.gov.in

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A. General

1. Scope of Tender

1.1 The Executive Engineer [1] (Referred to as Employer in these documents) invites tenders from eligible tenderers, for the **"Work of providing and laying of new 450 mm dia DI pipeline in place of 450 mm dia CI pipeline along RHS of Hare Krishna road to Mourya Hotel Junction coming under LLR S/stn of AEE SW-1 sub division."** (as **Work of providing and laying of new 450 mm dia DI pipeline in place of 450 mm dia CI pipeline along RHS of Hare Krishna road to Mourya Hotel Junction coming under LLR S/stn of AEE SW-1 sub division.** in these documents and referred to as "the works") detailed in the Table given in the Invitation for Tenders (IFT). The tenderers may submit tenders for any or all of the works detailed in the table given in IFT.

2. Eligible Tenderers

2.1 Tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Government of Karnataka

2.2 Tenders from Joint ventures are not acceptable.

3. Qualification of the Tenderer:

[All Tenderers shall upload to the e-procurement portal https://kppp.karnataka.gov.in the requested information accurately and in sufficient detail as also the requested documents as stipulated in Section 3: Qualification information]

3.1 All tenderers shall provide the requested information accurately and in sufficient detail in Section 3: Form of Tender and Qualification information.

3.2.1 To qualify for award of this contract, each tenderer in its name should have in the last five years i.e. 2019-2020 to 2023-2024)[2]

1 (a) achieved in at least two financial years a avereage financial turnover (in

0 all classes of civil engineering construction works only) of Rs.93.64 **Lakhs**

1 [3](*usually not less than the estimated cost under this*

2 *contract*)*;

3 (b) satisfactorily completed(*at least 50% of the contract value*), as prime

0 contractor, at least one similar work such as

1

2

3

*

0 of value not less than Rs.46.82 **lakhs** (*usually not less than 80%*
1 *estimated value of contract*)*

• (c) Should have executed one similar work in any one year during last five years, the following minimum quantities of work (80% of the annual requirement of 450mm dia & above DI Water pipe line = 644 Rmt.)

0 3.3 Each Tenderer should further demonstrate:

2 (a) Availability by owning 50% of the required / specified key and critical equipment for this work and remaining 50% can be deployed on lease / hire basis for all works provided, the relevant documents (commitment agreements etc.,) for availability for this work shall be furnished. Some of the equipments are **NA**

3

(b) liquid assets and/or availability of credit facilities of not less than ***Rs.28.09*** Lakhs (Credit lines/ letter of credit/ certificates from banks for meeting the fund requirement etc.

3.4 To qualify for a package of contracts made up of this and other contracts for which tenders are invited in this IFT, the Tenderer must demonstrate having experience and resources to meet the aggregate of the qualifying criteria for the individual contracts.

3.5 Sub-contractors' experience and resources shall not be taken into account in determining the Tenderer's compliance with the qualifying criteria except to the extent stated in 3.2 (d) and (e) above.

1 3.6 Tenderers who meet the above specified minimum qualifying criteria, will only be qualified, if their available tender capacity is more than the total tender value. The available tender capacity will be calculated as under:

Assessed available tender capacity = (A*N*2.5 - B)>93.64 lakhs

where

A = Maximum value of civil engineering works executed in any one year during the last five years (updated to **2024-25** price level) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which tenders are invited.

B = Value, at **2024-25** price level, of existing commitments and on-going works to be completed during the next **5 months** (period of completion of the works for which Tenders are invited)*

Note: *The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Employer in charge, not below the rank of an Executive Engineer or equivalent*.*

3.2 Even though the tenderers meet the above criteria, they are subject to be

disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous Tender for the same work and had quoted unreasonably high tender prices and could not furnish rational justification.

B. Tender documents

4. Content of Tender documents

4.1 The set of tender documents shall have all the Sections given in Page 2:

4.2 The tender documents are available online on the website http://kppp.karnataka.gov.in. The tender documents can be **downloaded free of cost.**

5. Amendment of Tender documents

5.1 Before the deadline for submission of tenders, the Employer may modify the tender documents by issuing addenda/corrigendum which shall be posted on the e-procurement portal https://kppp.karnataka.gov.in and efforts would be made to send e-mail communications to all the registered tenderers.

5.2 Any addendum thus issued shall be part of the tender documents and shall be notified as addendum/corrigendum in the e-procurement portal, which shall be binding on all the prospective tenderers.

5.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend as necessary the deadline for submission of tenders, in accordance with Sub-Clause 16.2 below. This shall be notified in the e-procurement portal.

C. Preparation of Tenders

6. Documents comprising the Tender

6.1 a) The tender submitted in kppp by the Tenderer shall contain the documents as follows:

(a) Scanned copies of Qualification Information as per formats given in Section 3;
(b) The form of Tender (in the format indicated in Section 4)
(c) Priced Bill of Quantities shall be quote in e-procurement portal only.

& any other materials required be completing and submitting by Tenderers in accordance with these instructions. The documents listed under Sections 3, 4, 6 and 9 shall be filled in without exception.

b) Tenderers submitting tenders together with other contracts stated in the IFT to form a package will so indicate in the tender together with any discounts offered for the award of more than one contract

7. Tender prices

7.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer in online.

7.2 The bidder shall make online entries to fill in the unit rates in figures for all items of the Works described in the Bill of Quantities, the system will automatically convert the unit rates mentioned in figures to words and also calculate the amount of that item as well as the total bid value***. Items for which no rate is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.***

7.3 All duties, taxes, and other levies payable by the contractor under the contract, or
for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer.

7.4 The rates and prices quoted by the Tenderer shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

[The tenderer shall complete the Contractor's tender using the Form as given in Section 4. The completed Contractor's Tender shall be uploaded through the procurement portal]

8. Tender validity

8.1 Tenders shall remain valid for a period not less than ninety days after the deadline date for tender submission specified in Clause 12. A tender valid for a shorter period shall be rejected by the Employer as non-responsive.

8.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the Tenderers may extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing or by cable or e-mail. A Tenderer may refuse the request without forfeiting his earnest money deposit. A Tenderer agreeing to the

request will not be required or permitted to modify his tender, but will be required to extend the validity of his earnest money deposit for a period of the extension, and in compliance with Clause 9 in all respects.

9. Tender Processing Fee and Earnest money deposit

9.1 The Tenderers are required to pay (in the method as detailed in ITT Clause 9) as a part of his tender, the requisite tender processing fee as per details available on the e-procurement portal. The tenderers shall also furnish, as part of his tender, earnest money deposit in the amount as shown in column 4 of the Table of IFT for this particular work. This earnest money deposit amount should be made in full in the method as detailed in ITT Clause 9.2.The details of payment of tender processing fee and earnest money deposit shall be filled in the Form given in Section 4 and uploaded along with tender.

9.2 The tender processing fee and the tender security as specified in the Table of IFB shall be denominated in Indian Rupees and shall be paid in the e-procurement portal using any of the following payment modes:
-Credit Card
-Direct Debit
-National Electronic Funds Transfer (NEFT)(offline Payment)

9.3 The tenders of those tenderers who have not paid the tender processing fee as well as earnest money deposit as detailed in Clause 9.2 of the ITT will be rejected by the system and tenderers would not be able to submit their tenders. Any tender not accompanied by an acceptable earnest money deposit and not secured as indicated in Sub-Clauses 9.1 9.2 and 9.3 above shall be rejected by the Employer as non-responsive.

9.4 The earnest money deposit of unsuccessful Tenderers will be returned within 30 days of the end of the tender validity period specified in Sub-Clause 8.1.

9.5 The earnest money deposit of the successful Tenderer will be discharged when the Tenderer has signed the Agreement and furnished the required Performance Security.

9.6 The earnest money deposit may be forfeited:

(a) If the Tenderer withdraws the Tender after tender opening during the period of tender validity;

(b) If the Tenderer does not accept the correction of the Tender Price, pursuant to Clause 19; or

(c) In the case of a successful Tenderer, if the Tenderer fails within the specified time limit to

(i) Sign the Agreement; or

(ii) Furnish the required Security deposit

10. Format and signing of Tender

Tenderer shall submit the Bid electronically before the submission date and time published in eprocurement portal.

D. Submission of Tenders

11. Tendering through E-procurement system :

11.1 The Tenderer should submit the tenders through e-Procurement Porta. No other modes of submission are permitted. The tendering is through website https://kppp.karnataka.gov.in . Detailed guidelines for viewing of tenders and submission of online tenders are given in the website. The prospective tenderers can submit their tender online. However the tenderers are required to have enrolment/registration in the web site and should have valid Digital Signature Certificate (DSC). The DSC can be obtained from any authorized certifying agencies as given in the e-procurement portal. The tenderers should register in the web site https://kppp.karnataka.gov.in. After this, the tenderers can log in the site through the secured login.

11.2 **The tenderers are requested to go through the tender documents carefully and submit the required information and documents without exception to avoid risk of rejection of tenders.**

11.3 The tenders shall submit online all the requirements. All the documents are to be signed digitally by the tenderer. After electronic online tender submission, the system generates a unique tender reference number which is time stamped. This shall be treated as acknowledgement of tender submission.

12. Deadline for submission of the Tenders

12.1 Tenders must be submitted/uploaded no later than 16.00 hours on 14.08.2024. [9] The kppp platform will not accept the tenders after the stipulated date and time (as per the clock of the e-procurement platform)

12.2 The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with Clause 5, in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline. The amendment/notification shall be notified in the e-procurement platform.

9

13. Late Tenders

13.1 Tenders cannot be uploaded by the tenderers after the deadline for submission/uploading of tenders (as per the clock of the e-procurement platform) prescribed by the Employer.

14. Modification and Withdrawal of Tenders

14.1 In the **"My Bids"** section of the e-procurement portal, the tenderers can view the status of their tenders and decrypt tender(i.e. in cases where the Tenderer has chosen to encrypt the tender using his own public key) for modification or withdrawal before the stipulated date and time for submission/ uploading.

14.2 Tenderers may cancel/modify their tenders before the deadline for submission of the tenders.

14.3 For modification of tenders, the tenderers need not make any additional payment towards the cost of tendering process. For tender modification and consequent re-submission, the tenderer is required to cancel his bid submitted earlier (only the financial is cancelled. All the uploaded documents would be there). The last modified tender submitted by the tenderer within the tender submission time shall be considered as the tender. **For this purpose, modifications/withdrawal by other means will not be accepted**. In online system of tender submission, the modification/cancellations is allowed any number of times. The tenderers may cancel its bid by clicking on the cancel button in the MY Bids Section before the deadline for submission of tenders, however if the tender is cancelled and not resubmitted within the stipulated time on the last date of submission of tenders, it would deemed to be withdrawn.

14.4 No tender may be modified/ cancelled online after the deadline for submission of tenders.

14.5 Withdrawal or modification of a Tender between the deadline for submission of Tenders and the expiration of the original period of Tender validity specified in Clause 8.1 above or as extended pursuant to Clause 8.2 is not allowed in the e-procurement system. If the tenderer does the same through any other medium, then it may result in the forfeiture of the earnest money deposit pursuant to Clause 9.

E. Tender opening and evaluation

15. Opening of Technical portion of Tenders and evaluation to determine qualified Tenderers:

15.1 The Employer will open the Technical details of all the Tenders received (except those withdrawn), including modifications made pursuant to Clause 14, in the presence of the Tenderers or their representatives who choose to attend at 15.00 hours on 16.08.2024 the date and the place specified in Clause 12. In the event of the specified date of Tender opening being declared a holiday for the Employer, the Tenders will be opened at the appointed time and location on the next working day.

15.2 WITHDRAWAL proposal submitted pursuant to clause 14 shall be read out first and their bids shall not be opened.

15.3 The Tenderers names, the presence or absence of earnest money deposit (amount, format and validity), the submission of qualification information and such other information as the Employer may consider appropriate will be announced by the Employer at the opening.

15.4 The Employer shall prepare minutes of the Tender opening, including the information disclosed to those present in accordance with Sub-Clause 15.3.

15.5 The Price Tenders of all the Tenderers including modifications for financial tenders cannot be opened as this is programmed to open later after evaluation of the Technical details of the participating Tenderers.

15.6 The Employer will evaluate and determine whether each tender (a) meets the eligibility criteria defined in ITT Clause 2; (b) is accompanied by the required earnest money deposit as per stipulations in ITT Clause and (c) meets the minimum qualification criteria stipulated in ITT Clause 3. The Employer will draw out a list of qualified Tenderers.

16. Opening of Price Tender of qualified Tenderers and evaluation:

16.1 The Employer will inform all the Qualified Tenderers the time, date and venue fixed for the opening of the price Tenders. The Employer will open the price tender of Qualified Tenderers at the appointed time and date in the presence of the Tenders or their representatives who choose to attend. In the event of the specified date of Price tender opening being declared a holiday for the Employer, the price tenders will be opened at the appointed time and location on the next working day.

16.2 Deleted.

16.3 The Tenderers' names, the Tender prices, the total amount of each Tender, any discounts, and withdrawals, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No Tender shall be rejected at Tender opening.

16.4 The Employer shall prepare minutes of the Price Tender opening, including the information disclosed to those present in accordance with Sub-Clause 16.3.

17. Process to be confidential

17.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the

award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

18 Clarification of Tenders

18.1 To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at his discretion, ask any Tenderer for clarification of his Tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Tender shall be sought, offered, or permitted.

18.2 Subject to sub-clause 23.1, no Tenderer shall contact the Employer on any matter relating to its Tender from the time of the Tender opening to the time the contract is awarded. If the Tenderer wishes to bring additional information to the notice of the Employer, it should do so by uploading on the e-procurement portal.

18.3 Any effort by the Tenderer to influence the Employer in the Employer’s Tender evaluation, Tender comparison or contract award decisions may result in the rejection of the Tenderers’ Tender.

19. Examination of Tenders and determination of responsiveness

19.1 Prior to the detailed evaluation of Tenders, the Employer will determine whether each Tender; (a)meets the eligibility criteria defined in Clause 2; and; (b) has been properly signed (c)is accompanied by the required earnest money deposit and substantially responsive to the requirements of the Tender documents.

19.2 A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.

19.3 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

20. Correction of errors: Deleted

21. Evaluation and comparison of Tenders

21.1 The Employer will evaluate and compare only the Tenders determined to be substantially responsive in accordance with Clause 19.

21.2 In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows:

(a) Deleted

(b) Making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub Clause 14.5.

21.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Tender evaluation.

21.4 Deleted

21.5 If the tender of the successful tenderer is seriously unbalanced in relation to the Employer's estimate of the cost of the work to be performed under the contract, the Employer may require the Tenderer to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 25.1 be increased at the expense of the successful Tenderer to a level sufficient to protect the Employer against financial loss in the event of default of the successful under the contract.

F. Award of Contract

22. Award criteria

22.1 Subject to Clause 24, the Employer will award the Contract to the Tenderer whose Tender has been determined to be substantially responsive to the Tender documents and who has offered the lowest evaluated Tender Price, provided that such Tenderer has been determined to be (a) eligible in accordance with the provisions of Clause 2, and (b) qualified in accordance with the provisions of Clause 3.

23. Employer's right to accept any Tender and to reject any or all Tenders

23.1 Notwithstanding Clause 22, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the Employer's action.

24. Notification of award and signing of Agreement

24.1 The Tenderer whose Tender has been accepted will be notified of the award by the Employer prior to expiration of the Tender validity period by cable, telex, e-mail or facsimile confirmed by registered letter. This letter [*hereinafter and in the Conditions of Contract called the "Letter of Acceptance"]* will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract [*hereinafter and in the Contract called the "Contract Price"].*

24.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of Security deposit in accordance with the provisions of Clause 25.

24.3 The Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be kept ready for signature of the successful Tenderer in the office of Employer within 30 days following the notification of award along with the Letter of Acceptance. Within 20 days of receipt, the successful Tenderer will sign the Agreement and deliver it to the Employer.

24.4 Upon the furnishing by the successful Tenderer of the Performance Security, the Employer will promptly notify the other Tenderers that their Tenders have been unsuccessful.

25. Security deposit

25.1 Within 20 days of receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Security deposit in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional security for unbalanced tenders in accordance with Clause 21.5 of ITT and Clause 37 of the Conditions of Contract. :

- Cash or Banker's cheque/Demand draft,/Pay Order in favour of Chairman, BWSSB, from a Nationalized / Scheduled Indian Bank Payable at Bangalore
- A bank guarantee from a Nationalized / Scheduled Indian Bank in the form given in Section 10; or
- Specified Small Savings Instruments pledged to BWSSB

24.2 The security deposit if furnished in cash or demand draft can, if requested, be converted to interest bearing securities at the cost of the contractor.

24.3 Failure of the successful Tenderer to comply with the requirements of Sub-Clause 25.1 shall constitute sufficient

grounds for cancellation of the award and forfeiture of the Earnest money deposit.

26. Corrupt or Fraudulent practices

26.1 The GOK requires that the Tenderers/Suppliers/Contractors, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, GOK :

(a) will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(b) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a GOK contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a GOK contract.

26.2 Furthermore, Tenderers shall be aware of the provision stated in sub-clause 43.2 of the Conditions of Contract.

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

SECTION 3: QUALIFICATION INFORMATION

TABLE OF FORMS:

- **FORM OF TENDER**
- **QUALIFICATION INFORMATION**
- **LETTER OF ACCEPTANCE**
- **NOTICE TO PROCEED WITH THE WORK**

- AGREEMENT FORM

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

Form of Tender

Description of the Works: '**Work of providing and laying of new 450 mm dia DI pipeline in place of 450 mm dia CI pipeline along RHS of Hare Krishna**

road to Mourya Hotel Junction coming under LLR S/stn of AEE SW-1 sub division.".

Tender to : Executive Engineer, South West -1 Water Supply & Sanitary Division, BWSSB,

Address: Kapila Bhavan, 11th main, 35th cross, 4th T Block, Jayanagar, Bangalore-560041

GENTLEMEN,

We offer to execute the Works described above in accordance with the Conditions of Contract accompanying this Tender for the Contract Price as indicated in the Price ..... [*in figures*] (.....)[*in letters*].

This Tender and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Tender you receive.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We hereby confirm that this Tender complies with the Tender validity and Earnest money deposit required by the Tender documents.

We attach herewith our current income-tax clearance certificate.

Yours faithfully,

Authorized Signature:

Name & Title of Signatory: _____
Name of Tenderer _____

Address: ----------

Note: This Form has to be duly completed, signed and uploaded on the kppp portal.

Qualification Information

The Tenderer shall carefully fill in the herein required information completely and upload all the documents as requested in complete form. The information to be filled in by the Tenderer hereunder will be used for purposes of determining the Tenderer's eligibility to tender, to determine his capacity to perform the contract as provided for in Clause 3 of the Instructions to Tenderers. Incomplete and insufficient furnishing of information and not uploading the requested documents may result in rejection of the Tender. This information will not be incorporated in the Contract.

1.1 Constitution or legal status of Tenderer [*Attach copy*]

Place of Registration _____
[*Attach copy*]

Principal place of business: _____

1.2 Total value of civil engineering construction works executed and payments received in the last five years (in Rs. Lakhs)[14]

2019 - 20 [1]3 _____
2020 – 21 _____
2021 – 22_____
2022 – 23 _____
2023– 24 _____

P & L certified by the Chartered accountant

1.3 Information on works for which Tenders have been submitted and works which are yet to be completed as on the date of this Tender.

(A) Existing commitments and on-going works: (mandatory)

Description of Work	Place & State	Contract No. & Date	Name and Address of Employer	Value of Contract (Rs. lakhs)	Stipulated period of completion	Value of works[15] remaining to be completed (Rs. lakhs)	Anticipated date o completion
1	2	3	4	5	6	7	8

(B) Works for which Tenders already submitted: (mandatory)

Description of Work	Place & State	Name and Address of Employer	Estimated value of works (Rs. lakhs)	Stipulated Date period of completion	when decision is expected	Remarks if any
1	2	3	4	5	6	7

1.4. Name, address, and telephone, telex, and fax numbers of the Tenderers' bankers who may provide references if contacted by the Employer

NOTE: The following Forms mentioned below are for the information of the Tenderer. It is not to be completed and uploaded by the Tenderer on the kppp portal

1

1

1

Letter of Acceptance

(letterhead paper of the Employer)

_____[date]

To:_____[name and address of the Contractor]

Dear Sirs,

This is to notify you that your Tender dated _____ for execution of the _____ [name of the contract and identification number, as given in the Instructions to Tenderers] for the Contract Price of Rupees —— _____ (_____) [amount in words and figures], as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by our Agency.

You are hereby requested to furnish Security deposit, in the form detailed in Para 29.1 of ITT for an amount of Rs.———— within 20 days of the receipt of this letter of acceptance valid up to 30 days from the date of expiry of Defects Liability Period i.e. up to ..... and sign the contract, failing which action as stated in Para 29.4 of ITT will be taken.

Yours faithfully,

Authorized Signature

Name and Title of Signatory

Name of Agency

Issue of Notice to proceed with the work

(letterhead of the Employer)

———— (date)

To

————————————— (name and address of the Contractor)

—————————————

Dear Sirs:

Pursuant to your furnishing the requisite security deposit as stipulated in ITT Clause 24.1 and signing of the contract agreement for the construction of ———[4] Tender Price of Rs.———, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

[4]

(Signature, name and title of signatory authorized to sign on behalf of Employer)

Agreement Form

Agreement

This agreement, made the _____day of _____20_____, between_____ _____[name and address of Employer] (hereinafter called "the Employer") of the one part and _____ _____ _____[name and address of contractor] (hereinafter called "the Contractor") of the other part. Whereas the Employer is desirous that the Contractor execute _____ _____ _____[name and identification number of Contract] (hereinafter called "the Works") and the Employer has accepted the Tender by the Contractor for the execution and completion of such Works and the remedying of any defects therein at a contract price of Rupees.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
   i) Letter of Intent
   ii) Notice to proceed with the works
   iii) Contractor's Tender
   iv) Contract Data
   v) Conditions of contract (including special conditions of contract)
   vi) Specifications
   vii) Drawings
   viii) Bill of quantities and

ix) Any other listed in the Contract Data as forming part of the contract

x) Jurisdiction of Courts/Arbitration:

The sitting of arbitration shall be held at Bangalore only and nowhere else.

xi) Dispute of any kind arising out of the contract shall be resolved within the jurisdiction of Bangalore City only and the parties agree and clearly understand that the courts/tribunals situated at Bangalore Metropolitan City have exclusive jurisdiction for the redressal of the disputes arising out of the contract and no other place.

xii) The parties further agree and understand that the place or places of issue of bank guarantee other than Bangalore will have no jurisdiction to resolve dispute of any kind relating to enforcement of the bank guarantees submitted by the contractor at Bangalore for the execution of the contract at Bangalore.

xiii) The contractor shall comply with all the legal requirement in the matter of employment of workmen and provide all safety gadgets to the workmen while working in the hazards place or conditions during the execution of the contract.

xiv) Contractor shall be fully responsible in the event of death of employee/workman during the execution of the work and liable to pay adequate compensation to the dependants of employee/workman as per law.

xv) On his/their failure, if the Board is made to pay compensation the same shall be recovered by the Board from the contractor out of the amounts due to the contractor or by appropriate legal action.

xvi) If death of any employees occurs during execution of work due to negligence of contractor, the contract will be liable for termination.

xvii) In the event of such termination, the employer may consider blacklisting of firm after due notice.

xviii) In case of any death or accident the contactor will be cancelled after following due process.

xix) The Board will be entitled to claim exemplary damaged from the contractor in case of death of any work man/employees of the Contractor in any of the BWSSB works as it damages the reputation of the Board.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____
was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said _____
in the presence of:
Binding Signature of Employer _____
Binding Signature of Contractor _____

SECTION 4: CONDITIONS OF CONTRACT

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Conditions of Contract
A. General

1. Definitions

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Bold letters are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Tender.

Compensation events are those defined in Clause 38 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Employer in accordance with Sub Clause 46.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.2 below.

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Tender to carry out the Works has been accepted by the Employer.

The **Contractor's Tender** is the completed Tender document submitted by the Contractor to the Employer.

The **Contract price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects liability period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Employer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Employer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

A **Variation** is an instruction given by the Employer which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Employer will provide instructions clarifying queries about the Conditions of Contract.

2.2 The documents forming the Contract shall be interpreted in the following order of priority:

(1) Agreement
(2) Letter of Acceptance, notice to proceed with the works
(3) Contractor’s Tender
(4) Contract Data
(5) Conditions of Contract
(6) Specifications
(7) Drawings
(8) Bill of quantities and
(9) Any other document listed in the Contract Data as forming part of the Contract.

3. Law governing contract

3.1 The law governing the Contract is the Laws of India supplanted by the Karnataka Local Acts.

4. Employer's decisions

4.1 Except where otherwise specifically stated, the Employer will decide contractual matters between the Employer and the Contractor.

5. Delegation

5.1 The Employer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Subcontracting

7.1 The Contractor may subcontract with the approval of the Employer but may not assign the Contract without the approval of the Employer in writing. Subcontracting does not alter the Contractor's obligations

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer.

9. Personnel

9.1 The Contractor shall employ the technical personnel [*of number and qualifications]* as may be stipulated by GOK from time to time during the execution of the work. The technical staff so employed shall be available at site as may be stipulated by the Employer.

9.2 If the Employer asks the Contractor to remove a person who is a member of the Contractor's staff or his work force stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractor's risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Employer's risks

11.1 The Employer is responsible for the expected risks which are (a) in so far as rebellion, riot commotion or disorder or (b) a cause due solely to the design of the works, other than the Contractor's design.

12. Contractor's risks

12.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Queries about the Contract Data

13.1 The Employer will clarify queries on the Contract Data.

14. Contractor to construct the Works

14.1 The Contractor shall construct the Works in accordance with the Specification and Drawings.

15. The Works to be completed by the Intended Completion Date

15.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Employer, and complete them by the Intended Completion Date.

16. Safety

16.1 The Contractor shall be responsible for the safety of all activities on the Site.

17. Discoveries

17.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Contractor is to notify the Employer of such discoveries and carry out the Employer's instructions for dealing with them.

18. Possession of the Site

18.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

19. Access to the Site

19.1 The Contractor shall allow the Employer and any person authorized by the Employer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured / fabricated / assembled for the works.

20. Instructions

20.1 The Contractor shall carry out all instructions of the Employer which comply with the applicable laws where the Site is located.

B. Time Control

21. Program

21.1 Within the time stated in the Contract Data the Contractor shall submit to the Employer for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.

21.2 The Employer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Employer again at any time. A revised Program is to show the effect of Variations and Compensation Events.

22. Extension of the Intended Completion Date

22.1 The Employer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date.

22.2 The Employer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information.

23. Delays ordered by the Employer

23.1 The Employer may instruct the Contractor to delay the start or progress of any activity within the Works.

24. Management meetings

24.1 The Employer may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the progress achieved and the plans for remaining work.

24.2 The responsibility of the parties for actions to be taken is to be decided by the Employer either at the management meeting or after the management meeting and stated in writing to be distributed to all who attended the meeting.

C. Quality Control

25. Identifying defects

25.1 The Employer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Employer may instruct the Contractor to search for a Defect and to uncover and test any work that the Employer considers may have a Defect

26. Tests

26.1 If the Employer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect the test shall be a Compensation Event.

27. Correction of defects

27.1 The Employer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

27.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Employer's notice.

28. Uncorrected defects

28.1 If the Contractor has not corrected a Defect within the time specified in the Employer's notice, the Employer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

1

2 D. Cost Control

29. Bill of Quantities (BOQ)

29.1 The BOQ shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

29.2 The BOQ is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the BOQ for each item

30. Variations

30.1 The Employer shall have power to order the Contractor to do any or all of the following as considered necessary or advisable during the progress of the work by him

(a) Increase or decrease of any item of work included in the Bill of Quantities (BOQ);
(b) Omit any item of work;
(c) Change the character or quality or kind of any item of work;
(d) Change the levels, lines, positions and dimensions of any part of the work;
(e) Execute additional items of work of any kind necessary for the completion of the works; and
(f) Change in any specified sequence, methods or timing of construction of any part of the work.

30.2 The Contractor shall be bound to carry out the work in accordance with any instructions in this connection, which may be given to him in writing by the Employer and such alteration shall not vitiate or invalidate the contract.

30.3 Variations shall not be made by the Contractor without an order in writing by the Employer, provided that no order in writing shall be required for increase or decrease in the quantity of an item appearing in the BOQ so long as the work executed conforms to the approved drawings.

30.4 The Contractor shall promptly request in writing the Employer to confirm verbal orders and if no such confirmation is received within 15 days of request, it shall be deemed to be an order in writing by the Employer

31. Payments for Variations

31.1 Payment for increase in the quantities of an item in the BOQ up to 25% of that provided in the Bill of Quantities shall be made at the rates quoted by the Contractor.

31.2 For quantities in excess of 125% of the tendered quantity of an item as given in the BOQ, the Contractor shall be paid at the rate entered in or derived from in the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract.

31.3 If there is no rate for the additional, substituted or altered item of the work in the BOQ, efforts would be made to derive the rates from those given in the BOQ or the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) and if found feasible the payment would be made at the derived rate for the item plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract

31.4 If the rates for additional, substituted or altered item of work cannot be determined either as at 35.1 or 35.2 or 35.3 above, the Contractor shall be requested to submit his quotation for the items supported by analysis of the rate or rates claimed, within 7 days.

31.5 If the Contractor's quotation is determined unreasonable, the Employer may order the Variation and make a change to the Contract Price which shall be based on Employer’s own forecast of the effects of the Variation on the Contractor's costs.

31.6 If the Employer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

31.7 Under no circumstances the Contractor shall suspend the work on the plea of non-settlement of rates for items falling under this Clause.

32. Submission of bills for payment

32.1 The Contractor shall submit to the Employer monthly bills of the value of the work completed less the cumulative amount paid previously.

32.2 The Employer shall check the Contractor's bill and determine the value of the work executed which shall comprise of (i) value of the quantities of the items in the BOQ completed and (ii) valuation of Variations and Compensation Events.

32.3 The Employer may exclude any item paid in a previous bill or reduce the proportion of any item previously paid in the light of later information.

33. Payments

33.1 Payments shall be adjusted for deductions for advance payments, other recoveries in terms of the contract and taxes, at source, as applicable under the law. The Employer shall pay the Contractor the within 60

days of submission of bill. The Contractor shall be liable to pay liquidated damages for shortfall in progress. For Progress beyond the agreed programme, payment is subject to availability of the grants.

33.2 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

34. Compensation events

34.1 The following are Compensation events unless they are caused by the Contractor:

(a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
(b) The Employer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
(c) The Employer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no Defects.
(d) The Employer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
(e) The effect on the Contractor of any of the Employer’s Risks.
(f) The Employer unreasonably delays issuing a Certificate of Completion.
(g) Other Compensation Events listed in the Contract Data or mentioned in the Contract.

34.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Employer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

34.3 As soon as information demonstrating the effect of each Compensation event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Employer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Employer shall adjust the Contract Price based on Employer’s own forecast. The Employer will assume that the Contractor will react competently and promptly to the event.

34.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Employer.

35. Tax

35.1 The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other taxes that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

36. Liquidated damages

36.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone as stated in the Contract Data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages does not affect the Contractor's liabilities.

36.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Employer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment of bill.

37. Cost of Repairs:

37.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

38. Completion

38.1 The Contractor shall request the Employer to issue a Certificate of Completion of the Works and the Employer will do so upon deciding that the Work is completed.

39. Taking over

39.1 The Employer shall take over the Site and the Works within seven days of issuing a certificate of Completion.

40. Final account

40.1 The Contractor shall supply to the Employer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 90 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer shall issue within 90 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Employer shall decide on the amount payable to the Contractor and make payment within 60 days of receiving the Contractor’s revised account.

41. As built drawings and /or Operating and Maintenance Manuals

41.1 If “as built”[5] Drawings[17] and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

41.2 If the Contractor does not supply the Drawings by the dates stated in the Contract Data, or they do not receive the Employer’s approval, the Employer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

42. Termination

42.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

42.2 Fundamental breaches of Contract include, but shall not be limited to the following:

(a) The Contractor stops work for 45 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Employer;

(b) The Employer instructs the Contractor to delay the progress of the Works and the instruction is not withdrawn within 60 days;

(c) The Contractor becomes bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

(d) A payment due to the Contractor is not paid by the Employer within 90 days of the date of the submission of the Bill by Contractor;

(e) The Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Employer;

(f) The Contractor does not maintain a security which is required;

(g) The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and

(h) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in the executing the Contract.

For the purpose of this paragraph : “corrupt practice” means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution. “Fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to

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establish Tender prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition."

42.3 When either party to the Contract gives notice of a breach of contract to the Employer for a cause other than those listed under Sub Clause 49.2 above, the Employer shall decide whether the breach is fundamental or not.

42.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

42.5 If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

43. Payment upon Termination

43.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Employer shall prepare bill for the value of the work done less advance payments received up to the date of the bill, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

43.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Employer shall prepare bill for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract, and less taxes due to be deducted at source as per applicable law and make payment accordingly.

44. Property

44.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

45. Release from performance

45.1 If the Contract is frustrated by any event entirely outside the control of either the Employer or the Contractor the Employer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made

F. Special Conditions of Contract

1. Labour :

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

The Contractor shall, if required by the Employer, deliver to the Employer a return in detail, in such form and at such intervals as the Employer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Employer may require.

2. Compliance with labour regulations :

During continuance of the contract, the Contractor and his sub contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, Employer shall have the right to deduct any money due to the Contractor including his amount of security deposit. The Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

3. Protection of Environment:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

4. The contractor should utilize treated water from the STPs for the purpose of road restoration while compacting the earth.

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

SECTION 5: CONTRACT DATA

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract:
Clause Reference

The Employer is : Executive Engineer

Name: Mrs.Sneha.V
[1.1]

Address: Executive Engineer, South West -1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross 4th T Block, Jayanagar,
Bangalore-560041.

Name of authorized Representative: Mrs.Sneha.V
The name and identification number of the contract is
[1.1]
BWSSB /EESW-1/TO/PB/ 1208/2024-25 Dt: 29.07.2024

"**Work of providing and laying of new 450 mm dia DI pipeline in place of 450 mm dia CI pipeline along RHS of Hare Krishna road to Mourya Hotel Junction coming under LLR S/stn of AEE SW-1 sub division**."

The start date shall be the date of issue of notice to proceed with the work. [1.1]

The Intended Completion Date for the whole
of the Works is 5 months from the date of commencement of the work [6]
[15, 22]

The following documents also form part of the Contract: [2.2]
_____
_____

The alignment is located at **RHS of Hare Krishna road to Mourya Hotel Junction** [1.1]
and is defined in drawings nos. _____

[6]

_____

The Defects Liability Period is 365 days.
[27]

The liquidated damages for the whole of the works is 0.1% per day on the value of the work (amount) [7]
[36]

The maximum amount of liquidated damages for the whole of the works [36]
is ten percent of final contract price.

The date by which "as-built"[8] drawings (in scale …) in 2 sets are required is within 30 days of issue of certificate of completion.
[41]

The amount to be withheld for failing to supply "as built"[9] drawings by the date required is Rs._____
[41]

The following events shall also be fundamental breach of the contract : [42.2]

1. The contractor has contravened Sub-clause 7.1 and Clause 9 of CC.

The percentage to apply to the value of the work not completed representing the Employer's additional cost for completing the Works shall be 30 percent. [43.1]

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

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SECTION 6: SPECIFICATIONS

Annexure II

K/W-2

BANGALORE WATER SUPPLY AND SEWERAGE BOARD

CAUVERY BHAVAN, KEMPEGOWDA ROAD,
BANGALORE – 560 009

TENDER FOR THE WORK OF

Work of providing and laying of new 150 mm dia DI pipeline in place of 100 mm dia CI pipeline along LHS and RHS of K R Circle to Gopal Gowda Circle coming under LLR S/stn of AEE SW-1 sub division

(Through KPPP portal only)

http://www.kppp.karnataka.gov.in

Office of the Executive Engineer,
BANGALORE WATER SUPPLY & SEWERAGE BOARD
SOUTH-WEST-1 DIVISION,
Kapila Bhavan, 11th main, 35th cross,
4TH T BLOCK, JAYANAGAR, 560041
Telephone – 080 22945196

mail –
eesw@bwssb.gov.in

TENDER REFERENCE :	:	BWSSB/EESW-1/TO/PB/1208/ 24-25 Dated: 29.07.2024	
PERIOD OF SALE OF TENDER DOCUMENT	:	From: 31.07.2024	To: 14.08.2024
LAST DATE FOR SALE OF TENDER DOCUMENT	:	14.08.2024	@ 16.00 Hrs
LAST DATE AND TIME FOR RECEIPT OF TENDERS	:	14.08.2024	@ 16.00 Hrs
PLACE OF OPENING OF TENDER	:	Office of the Executive Engineer, South West-1 Water Supply & Sanitary Division, BWSSB, Kapila Bhavan, 11th main, 35th cross, 4th T block, Jayanagar, Bangalore-560041.	
TIME AND DATE OF OPENING OF TENDERS	:	16.08.2024	after 15.00 Hrs
ADDRESS FOR COMMUNICATION	:	Office of the Executive Engineer, South West-1 Water Supply & Sanitary Division, BWSSB, Kapila Bhavan, 11th main, 35th cross, 4th T block, Jayanagar, Bangalore-560041 Telephone – 080 22945196 mail – eesw@bwssb.gov.in	

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SECTION 1:

BANGALORE WATER SUPPLY AND SEWERAGE BOARD

Office of the Executive Engineer,
BANGALORE WATER SUPPLY & SEWERAGE BOARD
SOUTH-WEST-1 DIVISION,
4TH T BLOCK, JAYANAGAR, 560041
Telephone – 080 22945196
Email:eesw@bwssb.gov.in Telephone: 080- 22945196

INVITATION FOR TENDER

(ONLY THROUGH KPPP PORTAL) www.kppp.karnataka.gov.in

IFT No: BWSSB / EESW-1 / TO / PB / 1208 /2024-25 Date: 29.07.2024

For and on behalf of the Bangalore Water Supply and Sewerage Board, **Short term ITEMWAR TENDER is** invited through KPPP process with tender procedure in line with Rule 28 of the KTPP Act by the Executive Engineer, Water Supply and Sanitary Division (South-West)-1, 4th block, Jayanagar, Bangalore-560011 for the following work from registered Agencies of appropriate class as indicated against each work of **BWSSB/KUWSDB/KPWD,** etc. Who are having adequate financial resources, past experience in similar nature of work possessing valid VAT registration. The Board keeps the right of acceptance or rejection of any tender without assigning any reasons.

The Tenderers are required to pay the Earnest Money Deposit only through e-procurement portal only using any of the four modes.

16. (1)Credit Card (Online Payment) (2) Direct Debit Using Internet Banking (Online Payment) (3) Remittance at the Bank Counter - Challan (Offline Payment) (4) NEFT (National Electronic fund transfer) (Offline payment). The details regarding their capability to undertake the tender (as detailed in ITT Clause 4) and the price tender shall be uploaded in the website. Technical details will be opened on the date and time mentioned in ITT clause 5 and evaluated. The price tender of the Tenderer, who is found to be qualified to execute the tendered works, will be opened on the date notified later. The Tenderers are advised to note the minimum qualification criteria specified in Clause 3 of the Instructions to Tenderers to qualify for award of the contract.

17. Tender documents may be downloaded from www.kppp.karnataka.gov.in website only. Interested tenderers may obtain further information at the same address.

18. Additional information related to KPPP process can be obtained through the above mentioned website or contact KPPP helpdesk No.**080-2550 1216 / 2550 1227**. The electronic tender comprising Technical and Financial bids will be operated as **Single Cover Tender system.**

19. Bidders can access tender documents from 14.08.2024 **to 16.08.2024** through www.kppp.karnataka.gov.in website only and upload the required details; those are mentioned in different sections in the bid document in to electronic tender on the website. Scanned documents those are required to be furnished as per Section 2, 3 & 4 of the bid document shall be submitted through KPPP.

20. The Tender processing fee once paid will not be refunded.

21. The Last date and time for Receipt of tenders will be on 14.08.2024 upto 16:00Hrs **and the date of opening of tender will be on 16.08.2024 after 15.00 Hrs.**

TABLE

Sl. No	Name of work	Amount put to tender	Earnest Money Deposit @ 2%	Tender Processessing fee	Period of Completion of work	Eligibility Class of Contractor
1.	**Work of providing and laying of new 150 mm dia DI pipeline in place of 100 mm dia CI pipeline along LHS and RHS of K R Circle to Gopal Gowda Circle coming under LLR S/stn of AEE SW-1 sub division**	Rs.32,04,683/- (Exclusive of GST)	Rs.75,630/-	**As KPPP portal**	3 Months	Civil Contractor

The Eligibility criterion for the above work is as follows:

- The tender is based on Single Cover System.
- Contractors should have registration in BWSSB or KPWD/KUWSDB, etc
- The Tenderer Should have a in the last 5 years period achieved in atleast two financial years an average turnover of not less than estimated cost of the respective works (Profit & loss account, Balance sheet certified/Audited by chartered accountant).i.e.,Rs.37.81 Lakhs
- The Tenderer should have satisfactorily completed one similar work to an extent of 50% of the cost of the respective works. i.e.,Rs.18.91Lakhs
- **Assessed available tender capacity = (A*N*2.5 - B)>37.81 lakhs**
- Form of tender is mandatory to upload in KPPP portal.
- **Amount put to tender is exclusive of GST.**
- **Rates quoted shall be exclusive of GST.**
- **Qualification Information :-**

a) Profit & Loss Statement certified by Chartered accounted for a minimum period of Two Years upload in KPPP portal

b) Existing commitments on going Works upload in KPPP portal

c) Works for which tenders already submitted upload in KPPP portal

d) ITR for a Minimum period of Two financial years upload in KPPP portal.

22. The successful bidder would be required to give performance **bank guarantee of 5%** of the contract amount plus additional security for unbalanced bid amount from a Nationalized / Scheduled Indian Bank, with jurisdiction at Bangalore as specified, towards guarantee for completion of work within the stipulated period.

23. Applications / requisitions from joint venture Firms are not acceptable.

24. Bangalore Water Supply and Sewerage Board (BWSSB) reserve the right to cancel or annul the entire or part of this process of invitation at any time without assigning any reason.

25. For any additional information regarding the above tender, the firms who are interested to quote, may contact office of the undersigned at the office address given below on all working days during office hours (10:30hours to 17:00 hours).

26. List of documents to support qualification of bidder is to be uploaded to the e-procurement website www.kppp.karnataka.gov.in

27. Bidders shall submit offers that comply with the requirements of the bid document, including the basic technical design as indicated in the drawing and specifications. Alternatives will not be considered. The attention of the bidders is drawn to clause 23 regarding the rejection of the bids, which are not substantially responsive to the requirement of the bid document.

28. Other details can be seen in the tender documents.

Further details may be had from this office during the office hours on all working days. Corrigendum/Addendum/Modification/corrections, if any, will be published in the Web site only.

Executive Engineer
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavana, 11th main,
35th cross, 4th T block, Jayanagar,
Bangalore-560041.
Tel No.080-22945196 mail:eesw@bwssb.gov.in

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A. General

1. Scope of Tender

1.1 The Executive Engineer [10] (Referred to as Employer in these documents) invites tenders from eligible tenderers, for the **"Work of providing and laying of new 150 mm dia DI pipeline in place of 100 mm dia CI pipeline along LHS and RHS of K R Circle to Gopal Gowda Circle coming under LLR S/stn of AEE SW-1 sub division..."** (as defined in these documents and referred to as "the works") detailed in the Table given in the Invitation for Tenders (IFT). The tenderers may submit tenders for any or all of the works detailed in the table given in IFT.

2. Eligible Tenderers

2.1 Tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Government of Karnataka

2.2 Tenders from Joint ventures are not acceptable.

3. Qualification of the Tenderer:

[All Tenderers shall upload to the e-procurement portal https://kppp.karnataka.gov.in the requested information accurately and in sufficient detail as also the requested documents as stipulated in Section 3: Qualification information]

3.1 All tenderers shall provide the requested information accurately and in sufficient detail in Section 3: Form of Tender and Qualification information.

3.2.1 To qualify for award of this contract, each tenderer in its name should have in the last five years i.e. 2019-20 to 2023-2024)[11]

(a) achieved in at least two financial years an average turnover (in all classes of civil engineering construction works only) of Rs.37.81 **Lakhs** [12](*usually not less than the estimated cost under this contract*)*;

(b) satisfactorily completed(*at least 50% of the contract value*), as prime contractor, at least one similar work such as value not less than Rs. 18.91 **lakhs**.

(c) DELETED

(d) The Tenderer or his identified sub-contractor should possess valid license for executing water supply/sanitary engineering works and should have executed similar water supply/sanitary engineering works totaling Rs. 18.91 **lakhs** (*usually not less than 50% of the water supply/sanitary engineering works*)* in any one year;[13]

3.2.2 Tenderers who meet the above specified minimum qualifying criteria, will only be qualified, if their available tender capacity is more than the total tender value. The available tender capacity will be calculated as under:

Assessed available tender capacity = (A*N*2.5 - B) > 37.81 lakhs

10

11

12

*

13

where

A = Maximum value of civil engineering works executed in any one year during the last five years (*updated to2024-25 price level*) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which Tenders are invited.

B = Value, at *updated to2024-25 price level*, of existing commitments and on-going works to be completed during the next.....years (period of completion of the works for which Tenders are invited)*

Note: *The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Employer in charge, not below the rank of an Executive Engineer or equivalent*.*

3.2 Even though the tenderers meet the above criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous Tender for the same work and had quoted unreasonably high tender prices and could not furnish rational justification.

B. Tender documents

4. Content of Tender documents

4.1 The set of tender documents shall have all the Sections given in Page 2:

4.2 The tender documents are available online on the website http://kppp.karnataka.gov.in. The tender documents can be **downloaded free of cost.**

5. Amendment of Tender documents

5.1 Before the deadline for submission of tenders, the Employer may modify the tender documents by issuing addenda/corrigendum which shall be posted on the e-procurement portal https://kppp.karnatka.gov.in and efforts would be made to send e-mail communications to all the registered tenderers.

5.2 Any addendum thus issued shall be part of the tender documents and shall be notified as addendum/corrigendum in the e-procurement portal, which shall be binding on all the prospective tenderers.

5.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend as necessary the deadline for submission of tenders, in accordance with Sub-Clause 16.2 below. This shall be notified in the e-procurement portal.

*

C. Preparation of Tenders

6. Documents comprising the Tender

6.1 The tender submitted in e-procurement by the Tenderer shall contain the documents as follows:

(a) Scanned copies of Qualification Information as per formats given in Section 3;
(b) The form of Tender (in the format indicated in Section 4)
(c) Priced Bill of Quantities shall be quote in KPPP portal only.

& any other materials required be completing and submitting by Tenderers in accordance with these instructions. The documents listed under Sections 3, 4, 6 and 9 shall be filled in without exception.

7. Tender prices

7.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer in online.

7.2 The bidder shall make online entries to fill in the unit rates in figures for all items of the Works described in the Bill of Quantities, the system will automatically convert the unit rates mentioned in figures to words and also calculate the amount of that item as well as the total bid value. Items for which no rate is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

7.3 All duties, taxes, and other levies payable by the contractor under the contract, or
for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer.

7.4 The rates and prices quoted by the Tenderer shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

[The tenderer shall complete the Contractor's tender using the Form as given in Section 4. The completed Contractor's Tender shall be uploaded through the procurement portal]

8. Tender validity

8.1 Tenders shall remain valid for a period not less than ninety days after the deadline date for tender submission specified in Clause 12. A tender valid for a shorter period shall be rejected by the Employer as non-responsive.

8.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the Tenderers may extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing or by cable or e-mail. A Tenderer may refuse the request without forfeiting his earnest money deposit. A Tenderer agreeing to the request will not be required or permitted to modify his tender, but will be required to extend the validity of his earnest money deposit for a period of the extension, and in compliance with Clause 9 in all respects.

9. Tender Processing Fee and Earnest money deposit

9.1 The Tenderers are required to pay (in the method as detailed in ITT Clause 9) as a part of his tender, the requisite tender processing fee as per details available on the e-procurement portal. The tenderers shall also furnish, as part of his tender, earnest money deposit in the amount as shown in column 4 of the Table of IFT for this particular work. This earnest money deposit amount should be made in full in the method as detailed in ITT Clause 9.2.The details of payment of tender processing fee and earnest money deposit shall be filled in the Form given in Section 4 and uploaded along with tender.

9.2 The tender processing fee and the tender security as specified in the Table of IFB shall be denominated in Indian Rupees and shall be paid in the e-procurement portal using any of the following payment modes:
-Credit Card
-Direct Debit
-National Electronic Funds Transfer (NEFT)(offline Payment)

9.3 The tenders of those tenderers who have not paid the tender processing fee as well as earnest money deposit as detailed in Clause 9.2 of the ITT will be rejected by the system and tenderers would not be able to submit their tenders. Any tender not accompanied by an acceptable earnest money deposit and not secured as indicated in Sub-Clauses 9.1 9.2 and 9.3 above shall be rejected by the Employer as non-responsive.

9.4 The earnest money deposit of unsuccessful Tenderers will be returned within 30 days of the end of the tender validity period specified in Sub-Clause 8.1.

9.5 The earnest money deposit of the successful Tenderer will be discharged when the Tenderer has signed the Agreement and furnished the required Performance Security.

9.6 The earnest money deposit may be forfeited:

(a) If the Tenderer withdraws the Tender after tender opening during the period of tender validity;

(b) If the Tenderer does not accept the correction of the Tender Price, pursuant to Clause 19; or

(c) In the case of a successful Tenderer, if the Tenderer fails within the specified time limit to

(i) Sign the Agreement; or

(ii) Furnish the required Security deposit

10. Format and signing of Tender

Tenderer shall submit the Bid electronically before the submission date and time published in eprocurement portal.

D.

D. Submission of Tenders

11. Tendering through E-procurement system:

11.1 The Tenderer should submit the tenders through e-Procurement Porta. No other modes of submission are permitted. The tendering is through website https://kppp.karnataka.gov.in . Detailed guidelines for viewing of tenders and submission of online tenders are given in the website. The prospective tenderers can submit their tender online. However the tenderers are required to have enrolment/registration in the web site and should have valid Digital Signature Certificate (DSC). The DSC can be obtained from any authorized

certifying agencies as given in the e-procurement portal. The tenderers should register in the web site https://kppp.karnataka.gov.in. After this, the tenderers can log in the site through the secured login.

11.2 **The tenderers are requested to go through the tender documents carefully and submit the required information and documents without exception to avoid risk of rejection of tenders.**

11.3 The tenders shall submit online all the requirements. All the documents are to be signed digitally by the tenderer. After electronic online tender submission, the system generates a unique tender reference number which is time stamped. This shall be treated as acknowledgement of tender submission.

12. Deadline for submission of the Tenders

12.1 Tenders must be submitted/uploaded no later than 16.00 hours on 14.08.2024 The KPPP platform will not accept the tenders after the stipulated date and time (as per the clock of the KPPP platform)

12.2 The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with Clause 5, in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline. The amendment/notification shall be notified in the KPPP platform.

13. Late Tenders

13.1 Tenders cannot be uploaded by the tenderers after the deadline for submission/uploading of tenders (as per the clock of the KPPP platform) prescribed by the Employer.

29. Modification and Withdrawal of Tenders

14.1 In the **"My Bids"** section of the e-procurement portal, the tenderers can view the status of their tenders and decrypt tender(i.e. in cases where the Tenderer has chosen to encrypt the tender using his own public key) for modification or withdrawal before the stipulated date and time for submission/ uploading.

14.2 Tenderers may cancel/modify their tenders before the deadline for submission of the tenders.

14.3 For modification of tenders, the tenderers need not make any additional payment towards the cost of tendering process. For tender modification and consequent re-submission, the tenderer is required to cancel his bid submitted earlier (only the financial is cancelled. All the uploaded documents would be there). The last modified tender submitted by the tenderer within the tender submission time shall be considered as the tender. **For this purpose, modifications/withdrawal by other means will not be accepted**. In online system of tender submission, the modification/cancellations is allowed any number of times. The tenderers may cancel its bid by clicking on the cancel button in the MY Bids Section before the deadline for submission of tenders, however if the tender is cancelled and not resubmitted within the stipulated time on the last date of submission of tenders, it would deemed to be withdrawn.

14.4 No tender may be modified/ cancelled online after the deadline for submission of tenders.

14.5 Withdrawal or modification of a Tender between the deadline for submission of Tenders and the expiration of the original period of Tender validity specified in Clause 8.1 above or as extended pursuant to Clause 8.2 is not allowed in the e-procurement system. If the tenderer does the same through any other medium, then it may result in the forfeiture of the earnest money deposit pursuant to Clause 9.

E. Tender opening and evaluation

15. Tender Opening:

15.1 The Employer will open/unlock the tenders of all the Tenderers uploaded through e-procurement platform as specified above, including modifications made pursuant to Clause 14 online at 15.00 Hours on 16.08.2024 in the presence of tenderers or their authorized representatives, who choose to be present at the stipulated place as notified in the procurement portal. In the event of the specified date of Tender opening being declared a holiday for the Employer, the Tenders will be opened at the appointed time and location on the next working day. The tenderers can also view the contents of tenders after the opening of the tenders. The tenderer's representatives who are present shall produce authorization letter and shall sign evidencing their attendance

15.2 Deleted

15.3 The Tenderers names, the Tender prices, the total amount of each Tender, any discounts, Tender modifications and withdrawals, the presence or absence of Tender security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No Tender shall be rejected at Tender opening except for the late Tenders pursuant to Clause 13. Tenders [*and modifications*] sent pursuant to Clause 14 that are not opened and read out at Tender opening will not be considered for further evaluation regardless of circumstances. Late and withdrawn Tenders will be returned un-opened to Tenderers.

15.4 The Employer shall prepare minutes of the Tender opening, including the Information disclosed to those present in accordance with Sub-Clause 15.3.

16. Process to be confidential

16.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

17 Clarification of Tenders

17.1 To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at his discretion, ask any Tenderer for clarification of his Tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Tender shall be sought, offered, or permitted.

17.2 Subject to sub-clause 22.1, no Tenderer shall contact the Employer on any matter relating to its Tender from the time of the Tender opening to the time the contract is awarded. If the Tenderer wishes to bring additional information to the notice of the Employer, it should do so by uploading on the e-procurement portal.

17.3 Any effort by the Tenderer to influence the Employer in the Employer's Tender evaluation, Tender comparison or contract award decisions may result in the rejection of the Tenderers' Tender.

18. Examination of Tenders and determination of responsiveness

18.1 Prior to the detailed evaluation of Tenders, the Employer will determine whether each Tender; (a)meets the eligibility criteria defined in Clause 2; and; (b) has been properly signed (c)is accompanied by the required earnest money deposit and substantially responsive to the requirements of the Tender documents.

18.2 A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.

18.3 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

19. Correction of errors: Deleted

20. Evaluation and comparison of Tenders

20.1 The Employer will evaluate and compare only the Tenders determined to be substantially responsive in accordance with Clause 18.

20.2 In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows:

(a) Deleted

(b) Making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub Clause 14.5.

20.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Tender evaluation.

20.4 Deleted

20.5 If the tender of the successful tenderer is seriously unbalanced in relation to the Employer's estimate of the cost of the work to be performed under the contract, the Employer may require the Tenderer to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and

schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 24.1 be increased at the expense of the successful Tenderer to a level sufficient to protect the Employer against financial loss in the event of default of the successful under the contract.

F. Award of Contract

21. Award criteria

21.1 Subject to Clause 23, the Employer will award the Contract to the Tenderer whose Tender has been determined to be substantially responsive to the Tender documents and who has offered the lowest evaluated Tender Price, provided that such Tenderer has been determined to be (a) eligible in accordance with the provisions of Clause 2, and (b) qualified in accordance with the provisions of Clause 3.

22. Employer's right to accept any Tender and to reject any or all Tenders

22.1 Notwithstanding Clause 21, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the Employer's action.

23. Notification of award and signing of Agreement

23.1 The Tenderer whose Tender has been accepted will be notified of the award by the Employer prior to expiration of the Tender validity period by cable, telex, e-mail or facsimile confirmed by registered letter. This letter [*hereinafter and in the Conditions of Contract called the "Letter of Acceptance"]* will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract [*hereinafter and in the Contract called the "Contract Price"].*

23.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of Security deposit in accordance with the provisions of Clause 24.

23.3 The Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be kept ready for signature of the successful Tenderer in the office of Employer within 30 days following the notification of award along with the Letter of Acceptance. Within 20 days of receipt, the successful Tenderer will sign the Agreement and deliver it to the Employer.

23.4 Upon the furnishing by the successful Tenderer of the Performance Security, the Employer will promptly notify the other Tenderers that their Tenders have been unsuccessful.

24. Security deposit

24.1 Within 20 days of receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Security deposit in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional

security for unbalanced tenders in accordance with Clause 20.5 of ITT and Clause 37 of the Conditions of Contract. :

- Cash or Banker's cheque/Demand draft,/Pay Order in favour of Chairman, BWSSB, from a Nationalized / Scheduled Indian Bank Payable at Bangalore
- A bank guarantee from a Nationalized / Scheduled Indian Bank in the form given in Section 10; or
- Specified Small Savings Instruments pledged to BWSSB

24.2 The security deposit if furnished in cash or demand draft can, if requested, be converted to interest bearing securities at the cost of the contractor.

24.3 Failure of the successful Tenderer to comply with the requirements of Sub-Clause 24.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Earnest money deposit.

25. Corrupt or Fraudulent practices

25.1 The GOK requires that the Tenderers/Suppliers/Contractors, observe the highest

standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, GOK :

(a) will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(b) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a GOK contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a GOK contract.

25.2 Furthermore, Tenderers shall be aware of the provision stated in sub-clause 43.2 of the Conditions of Contract.

Executive Engineer
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavana, 11th main,
35th cross, 4th T block, Jayanagar,
Bangalore-560041.
Tel No.080-22945196 mail:eesw@bwssb.gov.in

SECTION 3: QUALIFICATION INFORMATION

TABLE OF FORMS:

- **FORM OF TENDER**
- **QUALIFICATION INFORMATION**
- **LETTER OF ACCEPTANCE**
- **NOTICE TO PROCEED WITH THE WORK**
- **AGREEMENT FORM**

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

Form of Tender

Description of the Works: '**Work of providing and laying of new 150 mm dia DI pipeline in place of 100 mm dia CI pipeline along LHS and RHS of K R Circle to Gopal Gowda Circle coming under LLR S/stn of AEE SW-1 sub division**.**"**

Tender to : Executive Engineer, South West-1 Water Supply & Sanitary Division, BWSSB,

Address: Kapila Bhavan, 11th main, 35th cross, 4th T Block, Jayanagar, Bangalore-560041

GENTLEMEN,

We offer to execute the Works described above in accordance with the Conditions of Contract accompanying this Tender for the Contract Price as indicated in the Price ..... [*in figures*](.....)[*in letters*].

This Tender and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Tender you receive.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We hereby confirm that this Tender complies with the Tender validity and Earnest money deposit required by the Tender documents.

We attach herewith our current income-tax clearance certificate.

Yours faithfully,

Authorized Signature:

Name & Title of Signatory: _____
Name of Tenderer _____

Address: ----------

Note: This Form has to be duly completed, signed and uploaded on the KPPP portal.

Qualification Information

The Tenderer shall carefully fill in the herein required information completely and upload all the documents as requested in complete form. The information to be filled in by the Tenderer hereunder will be used for purposes of determining the Tenderer's eligibility to tender, to determine his capacity to perform the contract as provided for in Clause 3 of the Instructions to Tenderers. Incomplete and insufficient furnishing of information and not uploading the requested documents may result in rejection of the Tender. This information will not be incorporated in the Contract.

1.1 Constitution or legal status of Tenderer [*Attach copy*]

Place of Registration _____
[*Attach copy*]

Principal place of business: _____

1.2 Total value of civil engineering construction works executed and payments received in the last five years (in Rs. Lakhs)[14]

2019 - 20[1]3	_____
2020 – 21	_____
2021 – 22	_____
2022 – 23	_____
2023– 24	_____

P & L certified by the Chartered accountant

1.3 Information on works for which Tenders have been submitted and works which are yet to be completed as on the date of this Tender.

1

1

(C) Existing commitments and on-going works: (Mandatory)

Description of Work	Place& State	Contract No. & Date	Name and Address of Employer	Value of Contract (Rs. lakhs)	Stipulated period of completion	Value of works[15] remaining to be completed (Rs. lakhs)	Anticipated date of completion
1	2	3	4	5	6	7	8

(D) **Works for which Tenders already submitted: (Mandatory)**

Description of Work	Place & State	Name and Address of Employer	Estimated value of works (Rs. lakhs)	Stipulated Date period of completion	when decision is expected	Remarks if any
1	2	3	4	5	6	7

1.4. Name, address, and telephone, telex, and fax numbers of the Tenderers' bankers who may provide references if contacted by the Employer

NOTE: The following Forms mentioned below are for the information of the Tenderer. It is not to be completed and uploaded by the Tenderer on the KPPP portal

Letter of Acceptance

(letterhead paper of the Employer)

_____[date]

To:_____[name and address of the Contractor]

Dear Sirs,

This is to notify you that your Tender dated _____ for execution of the _____ [name of the contract and identification number, as given in the Instructions to Tenderers] for the Contract Price of Rupees —— _____ (_____) [amount in words and figures], as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by our Agency.

You are hereby requested to furnish Security deposit, in the form detailed in Para 29.1 of ITT for an amount of Rs.———— within 20 days of the receipt of this letter of acceptance valid up to 30 days from the date of expiry of Defects Liability Period i.e. up to ..... and sign the contract, failing which action as stated in Para 29.4 of ITT will be taken.

Yours faithfully,
Authorized Signature
Name and Title of Signatory

1

Name of Agency

Issue of Notice to proceed with the work

(letterhead of the Employer)

——————— (date)

To

——————————————————— (name and address of the Contractor)

———————————————————

Dear Sirs:

Pursuant to your furnishing the requisite security deposit as stipulated in ITT Clause 24.1 and signing of the contract agreement for the construction of ———[14] Tender Price of Rs.————————, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of signatory authorized to sign on behalf of Employer)

Agreement Form

Agreement

This agreement, made the _____day of _____20_____, between_____ _____[name and address of Employer] (hereinafter called "the Employer") of the one part and _____ _____[name and address of contractor] (hereinafter called "the Contractor") of the other part.

Whereas the Employer is desirous that the Contractor execute _____ _____[name and identification number of Contract] (hereinafter called "the Works") and the Employer has accepted the Tender by the Contractor for the execution and completion of such Works and the remedying of any defects therein at a contract price of Rupees.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.

[14]

2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:

xx) Letter of Intent
xxi) Notice to proceed with the works
xxii) Contractor's Tender
xxiii) Contract Data
xxiv) Conditions of contract (including special conditions of contract)
xxv) Specifications
xxvi) Drawings
xxvii) Bill of quantities and
xxviii) Any other listed in the Contract Data as forming part of the contract
xxix) Jurisdiction of Courts/Arbitration:

The sitting of arbitration shall be held at Bangalore only and nowhere else.

xxx) Dispute of any kind arising out of the contract shall be resolved within the jurisdiction of Bangalore City only and the parties agree and clearly understand that the courts/tribunals situated at Bangalore Metropolitan City have exclusive jurisdiction for the redressal of the disputes arising out of the contract and no other place.

xxxi) The parties further agree and understand that the place or places of issue of bank guarantee other than Bangalore will have no jurisdiction to resolve dispute of any kind relating to enforcement of the bank guarantees submitted by the contractor at Bangalore for the execution of the contract at Bangalore.

xxxii) The contractor shall comply with all the legal requirement in the matter of employment of workmen and provide all safety gadgets to the workmen while working in the hazards place or conditions during the execution of the contract.

xxxiii) Contractor shall be fully responsible in the event of death of employee/workman during the execution of the work and liable to pay adequate compensation to the dependants of employee/workman as per law.

xxxiv) On his/their failure, if the Board is made to pay compensation the same shall be recovered by the Board from the contractor out of the amounts due to the contractor or by appropriate legal action.

xxxv) If death of any employees occurs during execution of work due to negligence of contractor, the contract will be liable for termination.

xxxvi) In the event of such termination, the employer may consider blacklisting of firm after due notice.

xxxvii) In case of any death or accident the contactor will be cancelled after following due process.

xxxviii) The Board will be entitled to claim exemplary damaged from the contractor in case of death of any work man/employees of the Contractor in any of the BWSSB works as it damages the reputation of the Board.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____
was hereunto affixed in the presence of:
Signed, Sealed and Delivered by the said _____
in the presence of:
Binding Signature of Employer _____
Binding Signature of Contractor _____

Executive Engineer
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavana, 11th main,
35th cross, 4th T block, Jayanagar,
Bangalore-560041.
Tel No.080-22945196 mail:eesw@bwssb.gov.in

SECTION 4: CONDITIONS OF CONTRACT

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Conditions of Contract

A. General

1. Definitions

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Bold letters are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Tender.

Compensation events are those defined in Clause 38 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Employer in accordance with Sub Clause 46.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.2 below.

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Tender to carry out the Works has been accepted by the Employer.

The **Contractor's Tender** is the completed Tender document submitted by the Contractor to the Employer.

The **Contract price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects liability period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Employer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Employer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

A **Variation** is an instruction given by the Employer which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Employer will provide instructions clarifying queries about the Conditions of Contract.

2.2 The documents forming the Contract shall be interpreted in the following order of priority:

(1) Agreement
(2) Letter of Acceptance, notice to proceed with the works
(3) Contractor’s Tender
(4) Contract Data
(5) Conditions of Contract
(6) Specifications
(7) Drawings
(8) Bill of quantities and
(9) Any other document listed in the Contract Data as forming part of the Contract.

3. Law governing contract

3.1 The law governing the Contract is the Laws of India supplanted by the Karnataka Local Acts.

4. Employer's decisions

4.1 Except where otherwise specifically stated, the Employer will decide contractual matters between the Employer and the Contractor.

5. Delegation

5.1 The Employer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Subcontracting

7.1 The Contractor may subcontract with the approval of the Employer but may not assign the Contract without the approval of the Employer in writing. Subcontracting does not alter the Contractor's obligations

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer.

9. Personnel

9.1 The Contractor shall employ the technical personnel [*of number and qualifications]* as may be stipulated by GOK from time to time during the execution of the work.

The technical staff so employed shall be available at site as may be stipulated by the Employer.

9.2 If the Employer asks the Contractor to remove a person who is a member of the Contractor's staff or his work force stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractor's risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Employer's risks

11.2 The Employer is responsible for the expected risks which are (a) in so far as rebellion, riot commotion or disorder or (b) a cause due solely to the design of the works, other than the Contractor's design.

12. Contractor's risks

12.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Queries about the Contract Data

13.1 The Employer will clarify queries on the Contract Data.

14. Contractor to construct the Works

14.1 The Contractor shall construct the Works in accordance with the Specification and Drawings.

15. The Works to be completed by the Intended Completion Date

15.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Employer, and complete them by the Intended Completion Date.

16. Safety

16.1 The Contractor shall be responsible for the safety of all activities on the Site.

17. Discoveries

17.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Contractor is to notify the Employer of such discoveries and carry out the Employer's instructions for dealing with them.

18. Possession of the Site

18.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

19. Access to the Site

19.1 The Contractor shall allow the Employer and any person authorized by the Employer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured / fabricated / assembled for the works.

20. Instructions

20.1 The Contractor shall carry out all instructions of the Employer which comply with the applicable laws where the Site is located.

B. Time Control

21. Program

21.1 Within the time stated in the Contract Data the Contractor shall submit to the Employer for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.

21.2 The Employer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Employer again at any time. A revised Program is to show the effect of Variations and Compensation Events.

22. Extension of the Intended Completion Date

22.1 The Employer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date.

22.2 The Employer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information.

23. Delays ordered by the Employer

23.1 The Employer may instruct the Contractor to delay the start or progress of any activity within the Works.

24. Management meetings

24.1 The Employer may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the progress achieved and the plans for remaining work.

24.2 The responsibility of the parties for actions to be taken is to be decided by the Employer either at the management meeting or after the management meeting and stated in writing to be distributed to all who attended the meeting.

C. Quality Control

25. Identifying defects

25.1 The Employer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Employer may instruct the Contractor to search for a Defect and to uncover and test any work that the Employer considers may have a Defect

26. Tests

26.1 If the Employer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect the test shall be a Compensation Event.

27. Correction of defects

27.3 The Employer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

27.4 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Employer’s notice.

28. Uncorrected defects

28.1 If the Contractor has not corrected a Defect within the time specified in the Employer’s notice, the Employer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

3

4 D. Cost Control

29. Bill of Quantities (BOQ)

29.1 The BOQ shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

29.2 The BOQ is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the BOQ for each item

30. Variations

30.1 The Employer shall have power to order the Contractor to do any or all of the following as considered necessary or advisable during the progress of the work by him

(a) Increase or decrease of any item of work included in the Bill of Quantities (BOQ);
(b) Omit any item of work;
(c) Change the character or quality or kind of any item of work;

(d) Change the levels, lines, positions and dimensions of any part of the work;
(e) Execute additional items of work of any kind necessary for the completion of the works; and
(f) Change in any specified sequence, methods or timing of construction of any part of the work.

30.2 The Contractor shall be bound to carry out the work in accordance with any instructions in this connection, which may be given to him in writing by the Employer and such alteration shall not vitiate or invalidate the contract.

30.3 Variations shall not be made by the Contractor without an order in writing by the Employer, provided that no order in writing shall be required for increase or decrease in the quantity of an item appearing in the BOQ so long as the work executed conforms to the approved drawings.

30.4 The Contractor shall promptly request in writing the Employer to confirm verbal orders and if no such confirmation is received within 15 days of request, it shall be deemed to be an order in writing by the Employer

31. Payments for Variations

31.1 Payment for increase in the quantities of an item in the BOQ up to 25% of that provided in the Bill of Quantities shall be made at the rates quoted by the Contractor.

31.2 For quantities in excess of 125% of the tendered quantity of an item as given in the BOQ, the Contractor shall be paid at the rate entered in or derived from in the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract.

31.3 If there is no rate for the additional, substituted or altered item of the work in the BOQ, efforts would be made to derive the rates from those given in the BOQ or the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) and if found feasible the payment would be made at the derived rate for the item plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract

31.4 If the rates for additional, substituted or altered item of work cannot be determined either as at 35.1 or 35.2 or 35.3 above, the Contractor shall be requested to submit his quotation for the items supported by analysis of the rate or rates claimed, within 7 days.

31.5 If the Contractor's quotation is determined unreasonable, the Employer may order the Variation and make a change to the Contract Price which shall be based on Employer’s own forecast of the effects of the Variation on the Contractor's costs.

31.6 If the Employer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

31.7 Under no circumstances the Contractor shall suspend the work on the plea of non-settlement of rates for items falling under this Clause.

32. Submission of bills for payment

32.1 The Contractor shall submit to the Employer monthly bills of the value of the work completed less the cumulative amount paid previously.

32.2 The Employer shall check the Contractor's bill and determine the value of the work executed which shall comprise of (i) value of the quantities of the items in the BOQ completed and (ii) valuation of Variations and Compensation Events.

32.3 The Employer may exclude any item paid in a previous bill or reduce the proportion of any item previously paid in the light of later information.

33. Payments

33.1 Payments shall be adjusted for deductions for advance payments, other recoveries in terms of the contract and taxes, at source, as applicable under the law. The Employer shall pay the Contractor the within 60 days of submission of bill. The Contractor shall be liable to pay liquidated damages for shortfall in progress. For Progress beyond the agreed programme, payment is subject to availability of the grants.

33.2 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

34. Compensation events

34.1 The following are Compensation events unless they are caused by the Contractor:

(a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
(b) The Employer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
(c) The Employer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no Defects.
(d) The Employer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
(e) The effect on the Contractor of any of the Employer’s Risks.
(f) The Employer unreasonably delays issuing a Certificate of Completion.
(g) Other Compensation Events listed in the Contract Data or mentioned in the Contract.

34.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Employer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

34.3 As soon as information demonstrating the effect of each Compensation event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Employer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Employer shall adjust the Contract Price based on Employer’s own forecast. The Employer will assume that the Contractor will react competently and promptly to the event.

34.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Employer.

35. Tax

35.1 The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other taxes that the Contractor will have to pay for the performance of this

Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

36. Liquidated damages

36.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone as stated in the Contract Data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages does not affect the Contractor's liabilities.

36.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Employer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment of bill.

37. Cost of Repairs:

37.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

38. Completion

38.1 The Contractor shall request the Employer to issue a Certificate of Completion of the Works and the Employer will do so upon deciding that the Work is completed.

39. Taking over

39.1 The Employer shall take over the Site and the Works within seven days of issuing a certificate of Completion.

40. Final account

40.1 The Contractor shall supply to the Employer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 90 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer shall issue within 90 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Employer shall decide on the amount payable to the Contractor and make payment within 60 days of receiving the Contractor’s revised account.

41. As built drawings and /or Operating and Maintenance Manuals

41.1 If “as built”[15] Drawings[17] and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

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41.2 If the Contractor does not supply the Drawings by the dates stated in the Contract Data, or they do not receive the Employer's approval, the Employer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

42. Termination

42.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

42.2 Fundamental breaches of Contract include, but shall not be limited to the following:

(i) The Contractor stops work for 45 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Employer;

(j) The Employer instructs the Contractor to delay the progress of the Works and the instruction is not withdrawn within 60 days;

(k) The Contractor becomes bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

(l) A payment due to the Contractor is not paid by the Employer within 90 days of the date of the submission of the Bill by Contractor;

(m) The Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Employer;

(n) The Contractor does not maintain a security which is required;

(o) The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and

(p) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in the executing the Contract.

For the purpose of this paragraph : "corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition."

42.3 When either party to the Contract gives notice of a breach of contract to the Employer for a cause other than those listed under Sub Clause 49.2 above, the Employer shall decide whether the breach is fundamental or not.

42.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

42.5 If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

43. Payment upon Termination

43.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Employer shall prepare bill for the value of the work done less advance payments received up to the date of the bill, less other recoveries due in

terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

43.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Employer shall prepare bill for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract, and less taxes due to be deducted at source as per applicable law and make payment accordingly.

44. Property

44.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor’s default.

45. Release from performance

45.1 If the Contract is frustrated by any event entirely outside the control of either the Employer or the Contractor the Employer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made

F. Special Conditions of Contract

1. Labour :

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

The Contractor shall, if required by the Employer, deliver to the Employer a return in detail, in such form and at such intervals as the Employer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Employer may require.

2. Compliance with labour regulations :

During continuance of the contract, the Contractor and his sub contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments.

If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, Employer shall have the right to deduct any money due to the Contractor including his amount of security deposit. The Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

3. Protection of Environment:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

4. The contractor should utilize treated water from the STPs for the purpose of road restoration while compacting the earth.

SECTION 5: CONTRACT DATA

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract: **Clause Reference**

The Employer is : Executive Engineer
Name: Mrs. Sneha.V [1.1]

Address: Executive Engineer, South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross 4th T Block, Jayanagar,
Bangalore-560041.

Name of authorized Representative: Mrs.Sneha.V
The name and identification number of the contract is [1.1]
BWSSB /EESW-1/TO/PB/1208 /2024-25 Dt:29.07.2024

"Work of providing and laying of new 150 mm dia DI pipeline in place of 100 mm dia CI pipeline along LHS and RHS of K R Circle to Gopal Gowda Circle coming under LLR S/stn of AEE SW-1 sub division."

The start date shall be the date of issue of notice to proceed with the work.
[1.1]

The Intended Completion Date for the whole

of the Works is 3 Months from the date of commencement of the work ---[16] [15, 22]

The following documents also form part of the Contract: [2.2]

_____
_____

The Site Possession Date is: [18]

The alignment is located at **LHS and RHS of K R Circle to Gopal Gowda Circle** [1.1]
and is defined in drawings nos. _____
_____
The Defects Liability Period is 365 days.
[27]
The liquidated damages for the whole of the works is Rs. 0.1% per day on the value of the work. [36]

The maximum amount of liquidated damages for the whole of the works
[36]
is ten percent of final contract price.
The date by which "as-built"[17] drawings (in scale …) in 2 sets are required is within 30 days of issue of certificate of completion.
[41]

The amount to be withheld for failing to supply "as built"[18] drawings by the date required is Rs._____
[41]

The following events shall also be fundamental breach of the contract :
[42.2]
1. The contractor has contravened Sub-clause 7.1 and Clause 9 of CC.

The percentage to apply to the value of the work not completed representing the Employer's additional cost for completing the Works shall be 30 percent.
[43.1]

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

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17
18

SECTION 6: TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

1.1. Scope Of Work.

The scope of work under this contract shall be as detailed above and as specified in Bill Quantities in Section-7,

1.2. contractual requirements

1.2.1. Contractor's Inspection of Sites:

The Contractor is deemed to have visited the sites and familiarized himself of t conditions and restrictions under which the work will be executed. The omission of any details sh not relieve the Contractor of his prima facie obligation and responsibility under the Contract to ca ut and successfully complete the rehabilitation works. The Employer will entertain no monetary ther claims, made by the Contractor on the grounds of 'want of knowledge'.

THE CONTRACTOR IS ADVISED THAT IT IS HIS SOLE RESPONSIBILITY TO ASCERTAIN FOR HIMSELF THE EXTENT OF WO HAT IS REQUIRED TO BE DONE IN SITE AND TO GENERALLY OBTAIN HIS OWN INFORMATION ON ALL MATTERS AFFECTING DIRECTLY NDIRECTLY THE EXECUTION OF THE WHOLE WORKS INVOLVED IN THE CONTRACT TO THE COMPLETE SATISFACTION OF THE ENGINE HE ENGINEER WILL ENTERTAIN NO CLAIM OF EXTRAS IN CONSEQUENCE OF ANY ALLEGED IGNORANCE IN ANY ASPECT. IT MUST LEARLY AND DEFINITELY UNDERSTOOD THAT THE CONTRACTOR SHALL BE HELD SOLELY RESPONSIBLE FOR MAKING ALL NECESS/ RRANGEMENTS AND COORDINATING WITH RELEVANT AUTHORITIES, COMPETENT AGENCIES AND SPECIALISTS ETC., TO ENSU ATISFACTORY COMPLETION OF THE CONTRACT.

.2.2. Tender Drawings and Contract Documents: NA

.2.3. Time of completion.

ime period for completion of all the works shall be 3 Months (inclusive of monsoon period) from t ate of issue of notice to commence. Within this period Contractor shall be required to complete t orks, including testing, commissioning and completion of the three months Trial run period.

.2.4. Work plan.

he Contractor shall prepare the work plan for the execution of works, which includes procurement ipes before starting of the works. The Contractor shall submit the planning's (Construction, Financi uality and Commissioning and handing over planning's) within 14 days after issue of letter cceptance and take necessary approvals for the same. The planning's shall be in the form of ERT/CPM and a bar chart together with description of his proposed method of working. The planni hall include all allowances to guard against delays caused due to inclement weather or its effe such as floods or draughts), fire or industrial disputes, unless such events could not reasonably ha een foreseen by an experienced Contractor.

1.2.5. Sign Board

The Contractor shall provide sign boards at the sites of the Works of approved size and design irected by the Engineer, which provides (i) the name of the Project and the financing agency (World Ba an); (ii) the names and addresses of the Employer, Contractor and Consultants; (iii) short description of t roject, (iv) the Contract amount (v) the starting and completion dates.

Such sign boards shall be located at specified places in the project coverage area as directed by t ngineer. Contractor shall take care of signboard and replace it in case of loss, damage, theft etc., the si oards may be in English or Kannada or in both as directed by the Engineer.

.2.6. Protection of Utilities

The Contractor is required to examine carefully the locations of the works and their alignmen ontractor is to make enquiries and co-ordinate with all the departments /authorities concerning all utility lin uch as water pipes, sewers, gas pipe, telephone (underground and /or overhead) lines, optic fibre cabl lectric and telecommunication cables (underground and /or overhead) , any other utility lines etc; etermine and verify to his satisfaction the character, sizes, position and lengths of such utilities fr uthentic records.

The Contractor shall be wholly responsible for the protection of such utilities as may be required, a hall not make any claim for extra work or extra time that may be required to protect such utilities. A amage, to the Utilities shall be restored/ repaired at Contractor's own cost. Shifting of any utilities if requir ill be taken up by BWSSB or any other agency separately after site inspection.

In case the alignment of the pipeline crosses the high tension electrical transmission lin elonging to the KPTCL / BESCOM or other authorities/ departments, the Contractor shall take recautions necessary to see that the work is carried out with care and safety, without disturbi uch transmission lines. The Contractor will be responsible to carry out all construction activities uch reaches in consultation with the owners of such facilities. However, satisfactory completion he entire work will be the responsibility of the Contractor.

.2.7. Performance Requirements:

The performance requirements have been spelt out in various parts of the Contra pecification. The Contractor shall ensure that, he fully understands and complies with all t equirements specified in the Contract. However, in the event of any conflicting performan equirements spelt out in the documents, the Contractor shall promptly bring such matters in writi o the attention of the Engineer for Engineers decision. The Engineer's decision will be conveyed he Contractor in writing and which is final. The Contractor shall fully comply with Engineer's decisi n the matter.

The Contractor is deemed to have read and understood all performance requirements befo idding and he shall have no claim whatsoever with respect to the Engineer's final decision on t natter.

.2.8. Contractor's Obligations:

The Clauses in this section are meant to provide general guidelines and Compliar equirements to the Contractor. It does not however relieve the Contractor from taking every oth tep and precautions as deemed necessary to complete the works successfully within the specifi Contract period and bid amount. Also, compliance to the approved Environmental management pl nd monitoring the same is part of the contract.

.2.9. Environmental Management Plan and Monitoring.

The Contractor shall be responsible for the mitigation measures to be taken for complying to t nvironmental management plan and monitor as described below.

.2.10. Special Traffic Precautions.

Contractors Attention is specially drawn to the requirements by the traffic police and road authorit nd specification regarding traffic control, access and reinstatement of road surface. It is necessary btain permission from traffic Inspector of Police prior to taking up any stretch of road for excavati nd sewer laying. It is necessary to carry out the work in such a manner as to cause minimu nterference with the public use of roads, footpaths and other thoroug

.2.11. Working in Restricted areas.

In addition to the clause stated in other section of the special specification the Contractor sh etermine prior to constructing the lengths of sewers where access to properties commerci omestic and institutional will be restricted.

The identification of these areas shall be agreed in consultation with the Engineer, Poli
nd Urban local body. In this case it may be necessary to operate one-way traffic system or to clo
oads. The Contractor shall be responsible for liaising with the police and other local representativ
o obtain permission to close roads or restrict traffic movement. No additional time will be allowed
hese pre-construction activities. Where roads are closed alternative routes are to be determined
onjunction with the authorities. Sign Boards are to be placed at both junctions of the route indicati
ROAD CLOSED & WORK UNDER PROGRESS". The expense for the same shall be borne by t
ontractor. The Contractor shall discuss these arrangements with the occupants of houses affected
nsure that their disruption is kept to a minimum. The Contractor is to offer assistance to reside
who are infirm or need special arrangements for access during construction.

n narrow roads and streets it may not be possible to operate excavation machinery in such cas
and excavation is to be done. The method of operation, length of sewer to be excavated, method
arricading, property access, dewatering, shoring, pipe laying, backfilling and road reinstateme
hall be stated in a 'Method Statement' to be submitted at least 4 weeks before work is scheduled
ommence in a particular location. The written agreement of the Engineer shall be obtained to t
nethod statement. If any additional safeguards are required by the Engineer these shall
ncorporated in the method statement at no extra cost and the method statement is to
esubmitted.

he Contractor will ensure that the noise created by his activities is suppressed. Adequate silence
tted to construction machinery, particularly compressors and drills. Dust is to be kept to a minimu
y using water sprinklers. Utility service connections shall be maintained to every prope
hroughout the construction phase and thereafter. If any defect/ damage is caused it shall
epaired immediately and at the Contractors expense. The disruption to the normal activities
esidents and other members of the public is to be kept to an absolute minimum. Providing adequa
oise control and other nuisances are kept to a minimum, extended working hours may be permitt
with the agreement of the Engineer and local residents. No additional payment shall be made for a
f these arrangements unless otherwise specified. Adequate lighting shall be provided by t
Contractor at his cost if night working is adopted.

.2.12. Interfaces with other packages.

this contract Package will have interface with other contracts, the contractor shall only undertake the e
onnections of sewers at the interface points, after the sewer has passed the hydraulic test on completion
nd connections. The contractor shall lay the bedding and backfill for sewers in normal manner.

.2.13. Order Of Precedence Within Bid Documents

n the event there is any conflict or discrepancy within the Bidding documents, the order
recedence will be determined as follows;

1. Addendum
2. Contract data
3. Instruction to Bidders
4. Invitation to Bid

5. General conditions contract including special conditions contract
6. Technical specifications

7. Bill of quantities.
8. Drawings

.2.14. Technical and Supervisory Staff : NA

.2.15 MEASUREMNTS & PAYMENTS.

.2.15.1. MEASUREMENTS

. Quantities

he quantities set out in the Bill of Quantities are the estimated quantities for the Works, and they a ot be taken as the actual and correct quantities of the Works to be executed by the Contractor ulfillment of his obligations under the Contract.

. Works to be Measured

he Engineer shall, except as otherwise stated, ascertain and determine by measurement the value he works in accordance with the contract and the contractor shall be paid that value in accordan ith applicable clauses of this contract. The Engineer shall, when he requires any part of the works e measured, give reasonable notice to the Contractor's authorized agent, who shall:

) forthwith attend or send a qualified representative to assist the Engineer or his representative naking such measurement, and

) supply all particulars required by the Engineer or his representative.

hould the Contractor not attend, or neglect or omit to send such representative, then t easurement made by the Engineer or his representative or approved by him shall be taken to be t orrect measurement for such part of the works. For the purpose of measuring such Permanent Wor s are to be measured by records and drawings, the Engineer shall prepare such records a rawings as the work proceeds as he deems necessary or appropriate and the Contractor, as a hen called upon to do so in writing, shall within 14 days, attend to examine and agree such recor nd drawings with the Engineer and shall sign the same when so agreed. If after examination of su ecords and drawings, the contractor does not agree the same or does not sign the same as agree ey shall nevertheless be taken to be correct, unless the Contractor, within 14 days of su xamination, lodges with the Engineer notice of the respects in which such records and drawings a laimed by him to be incorrect. On receipt of such notice, the Engineer shall review the records a rawings and either confirm or vary them.

. Method of Measurement

he Works shall be measured net, notwithstanding any general or local custom, except whe therwise provided for in the Contract.

.2.15.3. PAYMENTS.

lo part payments will be made for all items of works under this contract, except for pipeline work which will be paid as mentioned in contract data.

.0 EARTHWORK EXCAVATIONS.

2.1. General

he Earthwork Excavation for laying of sewers shall be carried out as per applicable IS specificatio pecification in the Bill of quantities and applicable clauses in this specifications.

The Contractor shall make all excavations required for laying and jointing of the pipeline a onstruction of pertinent structures as required by the project. Except where otherwise required by the proje r instructed by the Engineer, all excavation shall be in open cut, to the specified widths and depths w horing, strutting and bracing. The Contractor is advised to satisfy himself and quote rates accordingly w egard to the likely conditions that may be met with during the execution of the works, with regard to t nderground obstructions or conditions, necessary dewatering requirements including well point system ther means of dewatering the trenches before, during and after excavation, laying of bedding material, layi nd jointing sewers, hydraulic testing and till backfilling, construction of manholes, pipe supports etc., in s errain under ground water, rain water, sewage and waste water etc.

Earth work excavation for pipeline trenches and manhole chambers including depositing on ba ncluding, danger lighting and using sight rails and boning rods, including shoring, strutting, bailing out water very 100 metres wherever necessary as directed in the various strata with lead upto 30 meters and all li tc., complete. A minimum of three numbers of sight rails are to be maintained at all times during pipe layi etween manholes, including barricading as per directions of Engineer In-charge of work. (The Excavation co hould include the cost of shoring, strutting to facilitate for laying, jointing & testing of sewers, manholes.)

.2. Classification of Excavation

. All Soils includes the following,

). Soft clay, soft murrum, gravel shale etc. including. Stiff heavy clay, hard shale or compact murru equiring drifting tool or pick axe or both and shovel closely applied.

). Gravel, soft laterite, kankar and cobble stone having maximum diameter in anyone directi etween 75 mm and 300 mm.

). Soling of road paths etc., and hard core.

). Macadam surfaces such as water-bound and bitumen/tar bound.

). Lime concrete, stone masonry in lime/cement mortar below ground level.

). Soft Conglomerate, where the stones may be detached from the matrix with pick axe.

). Generally any material which requires the close application of pick axe or scarifiers to loosen and r ffering resistance to digging, greater than that offered by the hardest of any soil mentioned above.

). D.I.R. soft rock and medium hard rock includes,

). Ordinary rock comprising of lime stone, sand stone, hard laterite fissured rock, conglomerate or oth oft or disintegrated rock which may be quarried or split with crow bars.

b). Un-reinforced cement concrete which may be broken up with crow bars or pick axe and sto
nasonry in cement mortar below ground level.

). Boulders which do not require blasting having maximum diameter in any direction of more than 3
nm; found lying loose on the surface or embedded in river bed, soil, talus, slope wash, and terra
naterial of dissimilar origin.

). Hard laterite does not require blasting. It is to be classified under ordinary rock which does n
equire blasting.

i). Hard Rock includes,

). Any rock or cement concrete or RCC, excavation of which require the use of mechanical equipme
r chiselling.

.2.1. All soils.

he Earth work excavation in all soils, including the ones mixed with boulders of up to 30 cms siz
ncludes excavation both by manual and machine excavation based on location of excavation a
pace constraints. The quoted rates are applicable for both manual and machine excavation, t
ocation and extent of manual and machine excavation should be as described below,

). Manual excavation.

he manual excavation for laying the sewers in pipeline trenches shall be carried out as decided a
irected by the Engineer In-charge, along the alignment of such narrow roads and main roads whe
t is not possible for machine excavation and, at excavations in deeper depths of more than 3
roviding all safety measures to workmen at contractor's risk, also, manual excavation is to
dopted at the possible locations of under ground utilities to safeguard against damage.

). Machine excavation.

he machine excavation for laying the sewers in pipeline trenches shall be carried out along t
lignment of wide roads and in depths where there are no under ground utilities without causing a
amage to public property, and inconvenience to public.

Disintegrated Rock, Soft Rock and Soft Shale

his category includes excavation in disintegrated rock, soft rock, soft shale and in medium rock comprising
me stone, hard shale, schist, fissured rock, and all types of laterite with varying densities and compositi
equiring chiseling which can be cut by shovel and but without resorting to blasting.

Hard Rock

his category includes excavation in hard rock requiring hand and/or mechanical chiselling.

n case of difference in opinion between the classifications of rocks, the decision of the Engineer shall be fi
nd binding on the Contractor.

.3. Shoring and Bracing

s per Specifications and directions of the Engineer, the Contractor shall supply, fix and maintain necessa heathing, shoring and bracing etc., in steel or wood, as may be required to support the sides of t xcavation, to protect workmen in the trench and to prevent any trench movement which might any way inju r delay the work, change the required width of the trench, make unsafe condition for adjacent pavemer tilities, buildings or other structures above or below ground.

Sheathing, shoring and bracing shall be withdrawn and removed as the backfilling is being done, exce when the Engineer may agree that such sheathing, shoring and bracing be left in place, at the Contracto equest. In any case, the Contractor shall cut off any such sheathing at least 600 mm below the surface a hall remove the cut off material from the trench.

ll sheathing, shoring and bracing which is left in place under the foregoing provisions shall be removed in nanner so as to, not endanger the completed work or other structures, utilities or property, whether public rivate.

.4. Excavation in Rock

xcavation in rock shall be carried out without resorting to any kind of blasting, to a depth, 150 mm more th he bottom level of pipe and to a width equal to the diameter of the pipe plus specified working space on eith ide as given in drawing / as mentioned above. Unless otherwise directed by the Engineer, rock excavati hall be progressed at least by 20 m in advance of the pipe length proposed to be laid.

.5. Limits of excavation.

he trench for laying of sewers and construction of manholes shall be excavated in accordance with t elevant applicable Indian standard, as per the approved drawings, or as directed by the Engineer. The width ottom of trenches for sewers, unless otherwise specified in the approved construction drawings, or direct nd approved by Engineer, for different diameters of pipes laid at different depths shall be as given below,

). For all diameters, up to an average depth of 1.20 m, width of trench in mm is equal to diameter of pipe p 00 mm.

). For all diameters for depths above 1.20 m, width of trench in mm is equal to diameter of pipe plus 400 mm

). Not with standing (a). and (b). the total width of trench should not be less than 0.75 meters for dept xceeding 0.90 meters.

The width at top of trenches for sewers shall depend on depth of sewer, location and alignment of sew s per the approved construction drawings and directions of Engineer. Unless other wise specified in t rawings or directed by Engineer, for providing of sheet piling as per specifications in Bill of quantities, the t idths for excavations up to 2 meters depth shall be equal to bottom width (i.e. vertical side cuts.) and epths beyond two meters depth, for all types of soils/rock, steps shall be provided of 0.30 m width on eith ide of the trench at every lift of 2 meters and as per the directions of Engineer. The quoted rates xcavations in accordance with the above specifications shall include all shoring and strutting for all depths.

The depth of excavations shall limit to the specified gradients/reduced levels as per the approv onstruction drawings at ends, considering the necessary beddings/encasement/surround.

The Contractor shall not excavate beyond the dimensions specified as above. Should the excavati
ccur beyond the dimensions specified therein, because of the negligence of the Contractor, the Contrac
hall fill the excess space with granular material or concrete as directed by the Engineer. Nothing extra shall
aid to the Contractor on account of this. The contractor shall quote the rates for excavation items, limiting t
rench widths as above for whatsoever depths encountered, including necessary arrangements as requir
ny extra claim and increase in quantity other than the widths specified above, shall not be entertained
aid.

2.6. Trial pits

rial pits shall be excavated by the Contractor, as directed to do so, along the lines of the trenches as sho
n the drawings in advance of the excavations for the purpose of satisfying himself as to the location of un
round utilities, obstructions or soil strata's and conditions. Trial pits shall be excavated preferably by man
xcavation. The contractor has to take the permission of the concerned Executive Engineer, BWSSB, bef
aking up the work.

It involves, Earth work excavation for trial pits in all kinds of strata and for all depths, recordi
ecessary details of under ground utilities and kind of strata, including depositing on bank excavated ear
ncluding barricading, posting safety sign boards, shoring, strutting, bailing out water, wherever necessary
irected with all lead and lifts etc., complete. Any damage to the existing utilities unless otherwise specif
hall be repaired at Contractors own cost. The Precautionary measures shall be taken by the Contractor wh
naking trial pits and shall inform the Engineer before commencing such works. The contractor will be paid
er the item in BOQ on account of this work.

.7. Dewatering

Extra charges will be paid at quoted rates, for excavation in all classifications in watery situation or f
onditions towards dewatering including overnight recuperation for specified depth ranges with all lead a
fts etc., complete, including cost of installation and running of dewatering system such as well point syste
ny other system wherever required.

Dewatering shall be done in accordance with specifications. The Contractor shall be responsible for t
dequate pumping, drainage and bailing out of water from the excavation in case of inundation etc.,
renches. The sewer lines shall be laid above normal ground water table level and as directed by the Engine
ewatering shall be either continuous or intermittent using Diesel pump or any other method approved by t
ngineer. The method of dewatering shall depend on site condition and should be furnished by the Contrac
nd approved by the Engineer. The method of dewatering shall be either well point system or sump pumpi
he effectiveness of each method will depend upon the nature of the soil, the proportions of the trench a
egree of lowering required. Pumping test may be necessary to determine which method is Suitable.

If sump pumping is not practicable other control methods shall be considered and should be approved
he Engineer. The trenches should be kept dry till the completion of work, which includes excavation, pipeli
aying, jointing, testing and commissioning and backfilling. Precaution should be taken against the floatation
he pipes.

The Contractor shall conduct ground studies if found necessary and the cost for such studies has to
orne by the Contractor himself. The Contractor shall be responsible for the adequate pumping, drainage a
ailing out of water met due to all causes from the excavation for laying sewer lines, construction of manhol
et wells and all types of constructions. In case of failure to make such provisions or any other provisio
hich may result in unsuitable sub-grade conditions, the Contractor shall replace and repair the sub-grade

irected to the satisfaction of the Engineer, at his own cost and responsibility. Should the Contractor select se a gravel sub-grade with or without un jointed pipes with the gravel layers to facilitate flow of water umps or other points of disposal, such gravel sub grade with or without conveying pipes shall not neasured or paid as an extra item.

- Sump pumping

his method may be used in highly and moderately permeable soils such as gravels, sand and gravel mixtur his method is simple and cheap to install and used with watertight trench sheeting to limit the volume of flo o prevent the boiling in the bottom of the trench the following precaution should be taken

Drive sheeting deeper to lengthen drainage path

Use open pipe surrounded in gravel as a sump.

Move the sump to one side of the trench

o prevent removal of fines from soil causing loss of strength in the soil and undermining of the trench botto nd side support

Surround suction inlet with protected graded filter

Increase flow rate through the soil by using open pipe surrounded with gravel.

he delivery side of the pump should be monitored by taking samples of water and checking the proportion nes being removed. If fines are being continuously withdrawn or there are signs of trench instability, sur umping should be stopped and alternative methods to the considered.

- Well pointing

n this method, well points are installed at regular intervals on one or both sides of the trench and link arallel to a header main connected to a pump. Well points are usually installed at 0.6 to 2.0m centre entre by jetting them in ground with dense layers or cobbles & boulders it may be necessary to pre bore t ayers. The efficiency of the well points is increased by sanding in the well point and riser using a column harp sand. This Method has an advantage of drawing water away from the trench and in suitable conditions ffective in lowering the water by 4 to 6m. It will also reduce the hydrostatic heads on the trench supp ystem. It is of greatest use, in sand, the heavy flows in permeable ground, such as gravels, the well poi hould not to be so close together that the method becomes impractical. In clays the rate of seepage is t mall for the system to be properly effective. Silts can be stabilized in certain conditions by using spec rocedures.

The well pointing shall be either single sided well point or double sided well point. For higher dept ouble sided well point with multi stage shall be considered. Should the Contractor select to use a gravel su rade to facilitate flow of water to pumps or other points of disposal, such gravel sub-grade shall not neasured or paid for as an extra item. Contractor should assess the availability of extra earth required efilling in case of shortage in any particular reach well before quoting rates. Even in case the Contrac esorts to mechanical excavation, the Contractor should take care of proper refilling, consolidation and dispo f surplus earth. Disposal of ground water is to be away from the area of influence of the pipe laying ar uitable temporary pipelines are to be laid to existing watercourses.

.8. Slips and slides

he Contractor is responsible for proper protection of excavations made by him from any slips and slides. lides and caving shall be handled, removed or corrected by the Contractor without any extra compensation whatever time and under whatever circumstances they may occur. The excavations shall be made good a rought to necessary depth, width and levels without any extra cost. Special care should be taken to prote he safety of the workmen, staff and public or whoever at the site.

.9. Stacking of excavated material

ursuant to specification in Bill of Quantities or directions of Engineer in-charge of execution, the excavat naterial shall be stacked at suitable locations so as not to cause any inconvenience to the public or traffic, w ll safety measures in accordance with IS 3764 with latest revisions and amendments. The excavated mater hall be placed away from the sides of the trench. The excavated materials shall be stacked at a suitab istance, keeping in view the safety aspect of working personnel due to sliding and slippage based on nature oil and condition. The contractor shall be solely responsible for the untoward incident caused due to egligence of stacking the excavated material. Under circumstances where in, sewers have to be laid in narr athways, the excavated material shall be transported or placed with all lifts & lead as detailed in bill uantities to the nearby suitable place or as decided by the Engineer and brought back after laying and jointi or refilling of the trenches as per specifications under clause 2.11.

.10 Barricading.

he contractor shall Provide, erect and remove casurina pole three tier barricading using poles of 7.50 to ms. Dia. And 1.50m height above ground fixed vertically at intervals of 2.0 to 2.5 mtrs. C/C and Horizontally .50 mtrs, above ground level, including fixing poles in the ground for a minimum depth of 0.30 mtr. and ti ith coir rope firmly including cost and conveyance of all materials, labour, lead and lift charges complete. T ork will be paid as per the item in the BOQ.

2.11 : NA

.12. Safety measures

ursuant to Specifications in bill of quantities, relevant Indian standards or directions of the Engineer, t ontractor shall provide adequate safety measures. They shall include:

. Barricading all sides of the open trenches.

. Red danger lights as can be easily visible from dusk to dawn at an interval of 20 m and at he road crossings.

. Traffic signals and display boards giving direction for diversion of traffic at the appropria laces as may be directed by the Engineer.

. Adequately safe wooden plank / board or steel plate over the trenches at every 15 mete nterval or less depending upon access requirement to commercial, institutional and domes roperties to facilitate crossing by the public residing on either side of the trench.

. Round the clock watch and ward maintaining all safety regulations at the site of work a rotecting the site from unauthorized intrusions.

. The work due to the above facilities/arrangements by the contractor will be paid for the ite
n bill of quantities and the cost for the remaining shall be deemed to be included in the relative ite
f work.

.13. Progress of Excavation

he Contractor shall adjust excavation of trenches in such lengths that the pipes can be laid in such expos
ortion of the trench within 3 days / less than 3 days as per criticality of site condition and directions of t
ngineer.

nless otherwise directed by the Engineer, the following limitations for lengths of open trenches shall rule fo
ipeline in one continuous reach.

lot more than 50 m in built up area and 150 m elsewhere shall be opened in advance of pipe laying.

lot more than 50 m of pipeline left uncovered after pipe laying in built up areas and not more than 150
lsewhere.

.14. Works Included in Excavation

he following works as per specifications are also included in excavation and the term 'Excavation' sh
onstrue to mean all such items of work. The quoted rates should include the same:

. Provision of side space or additional space in the trench / pit for working and
ccommodating sheathing, shoring, bracing, etc.

. Supply, installation and removal after the work, all-sheathing, shoring and bracing require
rotecting the excavation where required or where such work is recommended by t
ngineer.

. The bidder shall verify the site conditions and wherever such dewatering is required it
onsidered that the rates quoted for dewatering item of work are inclusive of dewatering of surfa
nd sub-surface water.

. Protection of excavations.

. Providing adequate safety measures.

. Additional work in connection with overhead wires and poles.

. Excavations for socket and collar hollows.

. Supplying and fixing of sight rails and boning rods in the trench to facilitate measurement
ork etc. complete

. Temporary approaches to roads, properties etc., affected by excavation at no extra cost.

.15. Sheet piling : NIL

ersonal Safety Requirements:-

The personnel at site shall strictly adhere to Standard guidelines during the chemical coating activity,
ll times. The approved coating manufacturer shall supply complete standard requirement schedules for t
ersonnel to follow, prior to start of any coating application. The general requirements are:-

a. Observe the owners standard policy at all times and obey all written and verbal instructions from s
anagers and representatives.

b. Wear all PPE at all times including Hard Hat, Safety glasses, Boots, Gloves and masks as required.

c. When preparing and applying coatings and chemical materials all PPE must be worn including Glov
afety glasses and protective paper masks.

d. When using high pressure plural component spray equipment, all personnel working in t
pplication area must wear double filter breathers with OSHA or of atleast equivalent make.

a. Trenching.

Trenching includes all excavation which shall be carried out either by hand or by machine and shall
arried out in accordance with all requirements of Earth work excavations clause 2.0 to 2.17. Whereve
ocket or collar of pipe or fitting / special occurs, a grip is to be cut in the bottom of the trench or concrete b
o a depth of at least 75 mm below the bed of the pipe so that the pipe may have a fair bearing on its shaft a
oes not rest upon its socket. Such grip shall be of sufficient size in every respect to admit the hand all rou
he socket in order to make the joint, and the grip shall be maintained clear, until the joint has been approv
y Engineer.

b. Bedding

ecessary bedding (granular, concrete cradle, concrete arch etc.) shall be provided in accordan
ith approved construction drawings and specifications in the following clauses 6.1. to 6.1.5 of t
pecifications before laying of RCC sewer pipes.

c. Backfilling.

ackfilling shall be in accordance with requirements specified in clause 6.3 to 6.3.4. of backfilling.

.0 DUCTILE IRON (DI) PIPES.

.1. Manufacture of pipe

DI pipes and fittings (Class K7 & K9) shall be in accordance with IS: 8329 and IS: 9523. Pipes and fittin
hall be procured from reputed manufacturers with Engineer's approval. Engineer shall at all reasonable tim
ave free access to the place where the Pipes and fittings are manufactured for the purpose of examining a
esting the pipes and fittings and for witnessing the test and manufacturing.

All tests specified either in this specification or in the relevant Indian Standards specified above shall
erformed by the Manufacturer / Contractor at his own cost and in presence of Engineer if desired. For th
ufficient notice before testing of the pipes and fittings shall be given to Engineer

If the test is found unsatisfactory, Engineer may reject any or all pipes and fittings of th
ot. The decision of Engineer in this matter shall be final and binding on the Contractor and not subject to a
rbitration or appeal. The pipes and fittings shall be striped, with all precautions necessary to avoid warping
hrinking defects. The pipes and fittings shall be free from defects. Any defect in pipes and fittings in t
pinion of Engineer shall be rejected and shall be replaced by new one.

In the case of spigot and socket pipes and fittings, the socket shall be without the cen
ng. In the case of flanged pipes, the flanges shall be at the right angles to the axis of the pipe and machin
n face. The boltholes shall be drilled and located symmetrically off the centreline. The bolthole shall
oncentric with the bore and boltholes equally spaced. The flanges shall be integrally cast with the pipes a
ttings and the two flanges of the pipe shall be correctly aligned.

a). Materials

he materials used in the manufacture of pipes and fittings shall comply with requirements specified in
329 and IS: 9523.

). Dimensions and Tolerances

The internal diameter, thickness and length of barrel, dimensions of pipes and fittings shall be
er relevant tables of IS: 8329/IS: 9523 for different class of pipes and fittings. Each pipe shall be of unifo
hickness throughout its length.

The tolerances for pipes and fittings regarding dimensions, mass, ovality and deviations fr
traight line in case of pipes shall be as per IS: 8329/IS: 9523.

). Coatings

. General

Unless otherwise specified, DI pipes and fittings shall be coated with Bitumen in accordance w
elevant IS specifications. All buried DI pipes and fittings shall also have factory or site applied polythe
leeving. Coating shall not be applied to pipe and fittings unless its surface is clean, dry and free from ru
ipe coatings shall be inspected at site and any damage or defective areas shall be made good to t
atisfaction of the Engineer.

ii). Bitumen coating

Bitumen coating shall be of normal thickness of 75 microns unless otherwise specified. It shall be c
pplied compound complying with the requirements of relevant Indian standards, suitable for tropical climat
actory applied in accordance with the manufacturer's instructions.

Damaged areas of coating shall be repainted on site after removing any remaining loose coating a
ire brushing any rusted areas of pipe.

i). Polythene Sleeving

Where polythene sleeving is specified to be applied in addition to bitumen coating, it shall comply w
SO 8180. Site applied sleeving shall be stored under cover out of direct sunlight and its exposure to sunlig
hall be kept to a minimum. Pipes having a factory applied sleeving must be stored in the same conditio
oints in the sleeving shall be properly overlapped and taped in accordance with manufacturer's instructions
rovide continuous sleeving.

v). Cement mortar lining

All pipes and fittings shall be internally lined with cement mortar in accordance with relevant IS. T
ement used shall be Sulphate Resisting Cement confirming to IS: 12330. No admixtures in the mortar shall
sed without the approval of the Engineer.

Pipe linings shall be inspected on site and any damage or defective areas shall be made good to t
atisfaction of the Engineer.

Lining shall be uniform in thickness all along the pipe. The minimum thickness of factory applied ceme
ortar lining shall be as per IS: 11906.

3.2. Testing of pipes at manufacturing unit.

uring manufacture, tests on pipes shall be carried out in accordance with clause 1.2.8 of this techni
pecification by the Third party inspecting agency.

3.3. Marking

Marking shall be done as per IS: 8329 and IS: 9523 or any other relevant IS codes approved by the Engineer.

he following information shall be clearly marked on each pipe,

). Internal diameter of pipe.

). Class of pipe.

). Date of manufacture and

). Name of manufacture or his registered trade-mark or both.

3.4. Carting & Handling.

Carting and handling of D.I. pipes and fittings shall be in accordance with the clause 3.4. of GSW pip
pecifications.

. Trenching.

Trenching includes all excavation which shall be carried out either by hand or by machine and shall
arried out in accordance with all requirements of -Earth work excavations clause 2.0 to 2.17. Whereve
ocket or collar of pipe or fitting / special occurs, a grip is to be cut in the bottom of the trench or concrete b
o a depth of at least 75 mm below the bed of the pipe so that the pipe may have a fair bearing on its shaft a
oes not rest upon its socket. Such grip shall be of sufficient size in every respect to admit the hand all rou
he socket in order to make the joint, and the grip shall be maintained clear, until the joint has been approv
y Engineer.

Wherever D.I. pipes are laid over pillar supports for nala crossings etc. the pipes shall be placed as p
he construction drawings and as directed by the Engineer In-charge.

. bedding

The type of bedding (granular, concrete cradle, concrete arch etc.) shall be as per approv
onstruction drawings and specifications in the following clauses 6.1. to 6.1.5 of this section.

. Laying of the pipe : As above

ointing of pipes : As above

Measurement of pipes

The length of the sewer pipes shall be measured between the inner surfaces of consecutive manholes
tart to end points of laid alignment (at road crossings and Nala Crossings) at the invert level of the pipes alo
he central line of pipeline to the nearest centimetre.

Testing at work site.

After laying and jointing of pipes is completed, the pipe line shall be tested at work site as per all t
equirements in clause 9.1 to 9.1.4 of technical specifications and as approved by the Engineer.

Backfilling.

Backfilling shall be in accordance with requirements specified in clause 6.3 to 6.3.4. of backfilling.

TESTING AND COMMISSIONING.

Testing at site.

All sewers and appurtenances shall be tested before commissioning and trial run as per t
pecifications in this section. After laying and jointing of DI pipes and before backfilling the trenches, t
omplete length of the DI pipes is to be checked for water tightness and the sole responsibility of arranging t
ecessary equipments and apparatus lies with the contractor at his own cost. Any damage during testing sh
e contractor's responsibility and shall be rectified by him free of cost. Water for testing shall be arranged
he Contractor at his own cost.

Test Records

Complete test records shall be maintained for all tests carried out for DI/CI lines both during construction a
fter being in service. The tests carried out as in specifications, approved QAP shall be documented in t
ormats as approved by the Engineer and shall be carried out in the presence of the Engineer or
epresentative and shall be certified by the Engineer or his representative and the Contractor. All complet
est records/documents shall be submitted to the Engineer before submission of bills.

Commissioning

After satisfactory completion of works and Testing of the sewer lines and appurtenances as p
pecifications in above clauses, the system shall be commissioned for trial run and operation.

Final Finishing

The contractor will ensure that the entire structure along with all its installations is in finish
nd in new and fully operative condition when handed over. He shall have repaired and removed
igns of damage that might have been done during the course of construction of manholes and layi
f sewers. He shall also see that the entire exterior has been finished properly and the entire site
leared of all extra construction material, debris, and excavated soil. This shall have to be done to t
atisfaction of the Engineer.

As Built Drawings

The contractor shall submit to the Engineer within two months of actual completion of the wo
"As Built" Drawings as specified below and operation and maintenance instructions for the whole
he Works. These Drawings shall be accurate and correct in all respects, including the existing sew
etwork for which the contractor has done the condition assessment survey, shall be submitted
nd approved by the Engineer. Completion Drawings as below on two prints and one polyester fi
hall be supplied by the contractor, along with a soft copy in CD. These drawings shall be develop
n Auto CAD. Drawing shall be of standard size as below,

Structural Drawings showing reinforcement details of all the components covered under th
ontract as per standard practices.

PRIMING OF BASE COURSE WITH BITUMINOUS PRIMERS

cope

This specification relates to the operation of priming an absorbent base course, preparatory to
ubsequent bituminous treatment, through application of a low viscosity bituminous material
praying. The specification is intended to indicate what is considered to be a good practice
riming and shall apply unless modified by special provisions to take into account any unusu
onditions.

The scope involves, Providing and applying primer coat with bitumen emulsion on prepar
urface of granular Base of low porosity such as WBM including clearing of road

urface and spraying primer at the rate of 0.75 kg/sqm using mechanical means. As per MOR
pecification clause No. 502 complete in all respects with all lead & lifts etc complete.

Materials

The bituminous primer to be used should be such that it can penetrate into the base course
erform its intended function.

Types of primer

able can be used as guidance for choice of primer on different types of surfaces.

Table Guidelines for choice of primer

Type of Surface	Emulsion	Cut-back		Road tar
Low porosity	Not suitable	MC-0		RT-1 or RT-2
Medium porosity	SS or MS	MC-1 or SC-1	MC-2 or SC-2	RT-2 or RT-3
High porosity	MS	MC-3 or RC-1		RT-3 or RT-4

he primers shall conform to IS: 8887 – 1978 (for cationic emulsions), IS: 217-1961 (for cut-backs), and IS: 21
981 (for road tars), as applicable.

Viscosity

For selecting the appropriate type of primer out of the materials indicated in Table 1, t
tmospheric temperature during application should be given consideration. Also, within the range
iscosity specified, the primer for use may be selected keeping in view the level of porosity of t
urface to be treated.

Quantity of primer

he primer shall be applied at the rate of 0.75 kg/sqm.

Construction

a. Weather and seasonal limitations

Cut-back and road tar primers shall not be applied on wet surface or during dust storm or wh
he weather is foggy or rainy. Bitumen emulsion can be applied on wet surface. However, emulsio
hall not be applied during dust storm or when it is actually raining.

tmospheric temperature during priming should be above 10° C.

. Equipment

ll equipment required for the execution of work should be in good working condition at site.

. Preparation of base course surface

he base course surface to be primed shall be swept clean and free from dust. All loose materials a
ther foreign matter on the surface shall be removed completely, if necessary by using power blowe
r sweepers.

Large irregularities, potholes, depressions, etc. shall be repaired prior to priming. Mi
epressions may be ignored until the surface is primed. After which these might be patched with
uitable premixed material prior to the subsequent bituminous treatment.

The underlying surface shall be dry prior to priming. Except that in the case of bitum
mulsions, it may be desirable to dampen the surface slightly in order to obtain better penetration
he primer.

Pre-wetting should be done by water spraying, using equipment capable of uniform applicati
f water over the entire surface. The spraying may be taken up 2 to 12 hours before priming, in su
uantity that the surface during priming is damp but not saturated with water. Traffic shall be kept
he prepared areas prior to priming.

. Application of primer

After the base to be primed has been prepared as described above, the primer shall
niformly applied over the surface using mechanical sprayers. Rate of application of primer sh
orrespond to the quantities given in clause 11.2.5.

The spraying should preferably be carried out using sprayer mounted on distributor truck
with hand sprayer using mechanical pump. The use of hand-held containers such as watering ca
erforated buckets etc., is unacceptable and should not be permitted under any circumstanc
Quantity should be checked periodically using Tray Coating Test or any other suitable means.

Temperature of application of primer should be high enough to permit the primer
e sprayed effectively through the jets of the spray bar and to cover the base course surfa
ffectively.

e. Curing

The primed surface shall be allowed to cure fully. No traffic shall be allowed over the prim
urface during this period and in any case not before 24 hours if the primer is a cut-back bitumen a
hours in the case of bitumen emulsion. Any pool of excess cut-back primer, which has not be
ompletely absorbed by any part of the base course surface during the curing period, should
arefully swept over the adjacent surface, and then a light sand blotter course applied. The amou
pplied should be just sufficient to blot up the excess bitumen and prevent it being picked up unc
raffic. If an excess of bitumen residue is found on the primed surface after bitumen emulsion h
roken, a very light sand dusting may be applied to soak up the surplus material.

All loose sand should be swept from the base course surface prior to any subsequent bitumino
reatment.

ack Coat

All specifications in the clause 11.2.6 shall apply to this item of work and the specific scope
ork involves Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor
he rate of 0.375 kg/sqm on the prepared granular surface cleaned with mechanical broom such as W
urface as per MORTH specification clause No. 503 complete in all respects with all lead & lifts etc complete
ld surfaces at vertical and horizontal joints.

SPECIFICATIONS FOR SINGLE COAT BITUMINOUS SURFACE DRESSING (20MM THICK PRE-MIX BITUMINO
URFACING).

. Scope.

This specification is intended to indicate what is considered to be good practice for construction ingle coat bituminous surface dressing and shall apply unless modified by special provisions to take in ccount unusual conditions. The work specified consists of a wearing surface composed of a single applicat f bituminous material covered with one application of cover material of size as specified below, applied on reviously prepared base or pavement.

The specific scope involves, Providing, laying and rolling of open-graded premix surfacing of nm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen 80/100 ut-back or emulsion to required line, grade and level to serve as wearing course on a previously prepar ase, including mixing in suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capaci nished to required level and grades. Mechanical method using Penetration grade Bitumen and HMP ppropriate capacity, as per MORTH specification No.511 complete in all respects. (Bitumen 1.46kg/sqmt. Me = 0.0121) with 40-60 TPH hot mix with all lead & lift etc complete.

Materials

a. Bituminous materials - The bituminous materials shall be of grade 80/100 or cut-ba onforming to the requirements as specified and provided for in the proposal and satisfy t elated specification, issued by the Indian Standards Institution (vide I.S.I Standards 73-1961,21 961,217-1961 and 454-1961).

b. Cover materials

(i). General requirements - The cover material shall consist of crushed stone, crushed sl rushed gravel (shingle) or other stones, as specified, and shall have clean, strong, durable, and fai ubical fragments free from disintegrated pieces, salt, alkali, vegetable matter, dust and adhere oatings. The aggregate shall preferably be hydrophobic in nature and of low porosity.

(ii). Physical requirements - The aggregate shall satisfy the requirements given in Table

Table

Sl. No.	Property	Value	Method of test
1	Abrasion value, using Los Angeles machine or	Max. 35%	IS: 2386 (Part IV)
	Aggregate impact value	Max. 30%	- do -
2	Flakiness index	Max. 25%	IS: 2386 (Part I)
3	Stripping value	Max. 25%	IS: 6241
4	Water absorption (except in case of slag)	Max. 1%	IS: 2386 (Part III)
5	Soundness: Loss with sodium sulphate	Max. 12%	IS: 2386 (Part V)

–	5 cycles (in case of slag only)		
6	Unit weight or bulk density (In case of slag only)	Min. 1120 kg per m	IS: 2386 (Part III)

Where all these conditions cannot be satisfied, it is left to the Engineer-in-charge to allow reasonal olerances.

Size - The size of chippings to be used shall depend on whether the treatment is for the fi oat or for the subsequent or renewal coat and shall be as per the size specified below. For sing pplication of the aggregate, it is desirable to keep the grading of the various sizes as specified Table

Table

Sieve designation nominal size of aggregate	specification
For surfacing water-bound macadam – first coat	100 percent passing through 20 mm square mesh sieve and retained on 10 mm square mesh sieve
For subsequent or renewal coats 100 mm	100 percent passing through 12.5 mm square mesh sieve and retained on 6.3 mm square mesh sieve.
Note – It is essential to sieve the aggregates through proper size sieves to ensure the size stipulated in the specifications. The sieve sizes indicated above are as per IS: 460 – 1962.	

Construction methods

a. Weather and seasonal limitations - Preferably, the surface dressing work shall be carried nly when the atmospheric temperature in shade is 16°C or above. No bituminous material sh ormally be applied when the surface or the cover material is damp, when the weather is foggy ainy or during dust storm, except, in case of emulsions, the surface should be slightly damp.

b. Equipment - All equipment necessary for the proper construction of work shall be on the s f the work in good condition.

c. Preparation of road surface - The underlying course on which surface dressing is to be la hall be prepared, shaped and conditioned to a uniform grade and section as specified. A epressions or pot-holes shall be properly made up and thoroughly compacted sufficiently in advanc he defective parts should be clearly cut out and the patches of new material put in, and not put he existing surface.

Where the existing surface shows signs of "fatting-up", such position should be rectifie

t is important that the surface be dry and thoroughly cleaned immediately before applying t
inder. The surface should be swept clean free of caked earth and other foreign matter cleaned fi
ith hard brushes, then with softer brushes and finally blowing off with sacks or gunny bags
emove the fine dust. The base shall be applied with Tack coat as per clause 11.4.uniformly preferal
y a mechanical sprayer.

d. Application of bituminous material - After the surface to be treated has been prepared,
pecified above, bituminous material shall be sprayed uniformly over the dry surface preferably usi
echanical sprayers. The binder shall be applied at a temperature appropriate to the type of binc
nd equipment used. The premix open graded surfacing consisting of aggregates 13.2mm to 5.60m
hall be applied to an uniform thickness as per applicable IS standards to get the final compact
hickness of 20mm.

e. Rolling cover materials - Immediately after the application of the cover materials
escribed, the entire surface shall be rolled with a 8 to 10 tonne smooth wheeled road roller. T
olling shall begin at the edge and proceed lengthwise, over the-area to be rolled lapping not le
han one third of the roller tread and proceed towards the centre. When the centre is reached, t
olling shall then start at the opposite side and again proceed towards the centre. In the sup
levated portions, the rolling should proceed from the inner to the outer edge. While the rolling is
rogress, additional aggregate shall be spread by hand in whatever quantities may be required to
rregularities and to prevent picking up of the aggregate by the roller. Rolling shall be continued un
he particles are firmly embedded in the bituminous materials and present a uniform closed surfac
xcessive rolling which results in the crushing of the aggregate particles shall be avoided.

f. Finishing - The finished surface shall be uniform and conform to the lines, grades and typic
ross sections shown in the specifications.

g. Opening to traffic - When straight run bitumen or road tar is employed as the binder, t
nished surface shall be thrown open to traffic on the following day but if in special circumstanc
he road is required to be opened to traffic immediately after rolling, speed of the traffic shall
mited to 16 km per hour till the following day.

Where cutback bitumen and emulsion is employed, the finished surface shall be ke
losed to the traffic until it has sufficiently cured to hold the cover aggregates in place.

Controlling of traffic shall be done by some suitable device, such as barricading a
osting of watchmen, etc.

EAL COAT.

The scope of work involves Providing and laying seal coat sealing the voids in bitumino
urface laid to the specified levels, grade and cross fall using Type A seal coat as per MOR
pecification clause No. 513 complete in all respects with all lead & lift etc complete.(Bitumen = 0.
g/sqmt. Metal =0.009).

SPECIFICATIONS FOR CONSTRUCTION OF CONCRETE ROADS

Scope

This is intended to indicate what is considered to be good practice for the construction ement concrete road pavements, including preparation of the subgrade and sub -base underne hese pavements. This does not however cover the requirements of fully mechanized constructions.

The scope involves providing specified thickness of 1:3:6 proportion cement concrete as ba ourse and specified thickness of 1:1.5:3 proportion cement concrete as wearing course as p pproved construction drawings and specifications.

Materials

a. Ordinary Portland Cement - This should comply with the requirements of IS - 8112 with late evisions (Specification for Ordinary Portland Cement)

b. Aggregates

General - Aggregates should comply with IS - 383 -1970 "Specification for Coarse and Fi ggregates from Natural Sources for Concrete (Second Revision)" with special reference to t dditional requirements stipulated for use in road works excepting in the case of Los Angel brasion Test limit.

he Los Angeles Abrasion Test limits shall be not more than 35 per cent and 50 per cent for concre wearing course and sub -base course respectively. ln addition, the limits of deleterious material sh ot exceed the requirements set out in IS - 515 -1959 “Specification for Natural and Manufactur ggregates for Use in Mass Concrete." Weathered rock should not be used. In order to make go oncrete, it is important to avoid crushed aggregate of poor shape. Very angular, flaky, elongated plintery aggregates give a harsh mix of low workability. Maximum size of aggregate should n xceed l/4th of the pavement slab thickness. In case of pavements having reinforcement, maximu ize of aggregate should also not exceed l/4th of minimum clear spacing between reinforcing bars.

c. Coarse aggregates

Continuous grading - Continuously graded coarse aggregate should be furnished in at least t eparate sizes with separation at 20 mm I.S. sieve when combined material graded from 40 to 4. nm is specified, and at 25 mm I.S. sieve when combined material graded from 50 to 4.75 mm pecified.

. Fine aggregate - Fine aggregate shall preferably be natural sand. Crushed stone sand may also sed satisfactorily in concrete. The fine aggregate shall conform to IS: 383 -1970, the permissib ercentage passing limits on 300 and 150 -micron sieves shall be 15 -55 per cent and 0 -20 per ce espectively instead of 15 -50 percent and 0 -15 per cent as stipulated in IS Specification. Crush and is usually more angular in shape than naturally occurring sand, and for this reason may tend nake the mix a little harsher. In some cases, it may prove advantageous to use a mixture of natura ccurring sand and crushed stone sand if the former is not obtained in adequate supply or where rading is poor. Bulking due to presence of moisture in the fine aggregate should be accounted hen volumetric batching is employed.

e. Water - Water used in mixing or curing of concrete shall be clean and free from injurio
mounts of oil, salt, acid, vegetable matter or other substances harmful to the finished concrete.
hall meet the requirements stipulated in clauses of IS: 456 -2000 "Code of Practice for Plain a
einforced Concrete". Potable waters are generally considered satisfactory for mixing or curing.

f. Dowel and tie bars - Dowel and tie bars shall be plain round steel bars conforming to t
equirements of IS: 432 -1966.

. Premoulded joint filler - Premoulded joint filler shall be of the thickness shown on the drawin
within a tolerance of ±1.5 mm. It shall be 25 mm less in depth than the thickness of the slab, withi
olerance of ±3 mm and of the full width between road forms. Holes to accommodate dowel bars sh
e accurately bored or punched out. The joint filler shall comply with the requirements of IS: 183
961 "Specification for Preformed Fillers for Expansion Joint in Concrete, Non -extruding and Resilie
ype (Bitumen -impregnated Fiber)."

Water content and workability

The water content per batch of concrete should be maintained constantly except
uitable allowances to be made for free moisture and absorption by aggregates determined from ti
o time during construction. Adjustments for workability shall be made by variations in the ratio of t
oarse to fine aggregate or improving upon their grading without change in cement content or wate
ement ratio. The slump of the concrete mix for pavements compacted by vibration should not
hore than 25 mm, preferably between 0 and 12 mm, and that by manual compaction not more th
0 mm. No price adjustment would be permissible for variations in the gradations of the aggregat
r in the ratio of coarse to fine aggregates necessitated from adjustment at site.

Tools, equipment and appliances

General

All tools, equipment and appliances necessary for proper preparation of sub-grade, laying of s
base and batching, mixing, placing, finishing and curing of concrete shall be at the project site
ood working condition and shall have been inspected by the engineer before the paving operatio
re permitted to start. Throughout the construction of the project, the construction agency sh
naintain all necessary tools, equipment and appliances in first class working condition to ensu
roper execution of the work. Arrangements shall also be made for requisite number of stand -
nits in the event of break -downs during construction.

Forms

Steel forms - All side forms shall be of mild steel unless use of wooden sections is specia
ermitted. The steel forms shall be mild steel channel sections of depth equal to the thickness of t
avement. The sections shall have a length of at least 3 m except on curves of less than 45 m radiu
where shorter sections may be used. When set to grade and staked in place, the maximum deviati
f the top surface of any section from a straight line shall not exceed 3 mm in the vertical plane and
nm in the horizontal plane. The method of connection between sections shall be such that the jo
ormed shall be free from difference in level, play or movement in any direction. The use of be

wisted or worn -out forms will not be permitted. At least three stake pockets for bracing pins
takes shall be provided for each 3 m of form and the bracing and support must be ample to preve
pringing of the forms under the pressure of concrete or the weight or thrust of machinery operati
n the forms.

The supply of forms shall be sufficient to permit their remaining in place for 12 hours af
he concrete has been placed, or longer if necessary in the opinion of the engineer.

Wooden forms - Wooden forms may be used only when specifically permitted in the drawi
ith the exception that their use is herein approved for all curves having radii of less than 45
Wooden forms shall be dressed on one side. They shall have minimum base width of 100 mm for sl
hickness up to 200 mm and a minimum base width of 150 mm for slabs over 200 mm thick. Th
epth shall be equal to the thickness of the pavement. These forms when used on straight shall ha
minimum length of 3 m. Forms shall be held by stakes set at intervals not exceeding 2 m. T
takes, one on each side, shall be placed at each joint. The forms shall be firmly nailed or secured
he side stakes, and securely braced at joints, where necessary, so that no movement will result fr
he pressure of the concrete or the impact of the tamper and during finishing work. Wooden for
hall be capped along the inside upper edge with 50 -mm angle iron well recessed and kept flush w
he face of the wooden forms.

Setting of forms - The forms shall be jointed neatly and shall be set with exactness to t
equired grade and alignment. Both before and after the forms are placed and set the sub grade
ub -base under the forms shall be thoroughly tamped in an approved manner. Sufficient rigidity sh
e obtained to support the forms in such a position that during the entire operation of compacti
nd finishing of concrete they shall not at any time deviate more than 3 mm from a straight edge 3
n length. Forms, which show a variation from the required rigidity or alignment and levels shown
he drawing, shall be reset or removed, as directed. The length and number of stakes shall be su
s to maintain the forms at the correct line and grad -e. All forms shall be cleaned and oiled ea
me before they are used. Forms shall be set for about 200m ahead of the actual placing of concre

Joints

General - The location and type of joints shall be as shown in the drawing. The edge of the sl
t all joints shall be rounded off with an edging tool having a radius of 6 ± 1mm. The concrete alo
he face of all joints and around all tie bars and dowels shall be compacted with an internal vibra
nserted in the concrete and worked along the joint and around all tie bars and dowels to ensure
oncrete free from honeycombing.

Types of joints - There are three general types of joints. These are –

(i) Expansion joint - Such joint provides the space into which pavement can expand th
elieving compressive stresses due to expansion and inhibiting any tendency towards buckling
oncrete slabs.

(ii) Contraction joint - Such joint relieves tensile stresses in the concrete and prevents formati
f irregular cracks due to restraint in free contraction of concrete. Contraction joints also relie
tresses due to warping.

(iii) Warping joint - Such joint relieves stresses due to warping. These are commonly used f ongitudinal joints dividing the pavement into lanes.

In addition, construction joints are provided whenever construction operations require the hese are full depth joints and may belong to any of the above types.

All joints shall be carefully installed in accordance with the location and details given on t lans. The details of different types of joints are shown in Appendix B.

Transverse joints

General - Transverse joints can be expansion, contraction or construction joints and shall laced as indicated on the drawing. They shall make a right angle with the centre line of t avement and surface of the sub -base/subgrade. Contraction and expansion joints shall ontinuous from edge to edge of the pavement through all lanes constructed at the same or differe mes.

a. Transverse expansion joints - These shall extend over the entire width of the pavement. Th hall be of the dimensions and spacing as shown on the construction drawing.

Dowel bars (see Supplementary Note N. 4) as per dimensions, location and spacing sho n the drawing are required at expansion joints to transfer wheel loads to the adjacent slab. For sla f thickness less than 150 mm no dowel bars may be provided (IS: 6509 -1972). The pre-mould xpansion joint filler, a compressible material used to fill the gap between adjacent slabs at expansi oint shall conform to IS: 1838 -1961.

The height of the filler board shall be such that its top is 25 mm below the surface he pavement. The dowel bars shall be held accurately in position during the placement, compacti nd finishing of concrete at and near the expansion joint. This and the protection of the joint groo uring construction may be achieved by means of sufficiently strong bulkheads (as per IRC: 43 -197 ith holes drilled along the centre line to accommodate the dowel bars and a mild steel section (er IRC - 43 -1972) respectively. The latter shall be oiled or greased before placing in position to avo onding with concrete. The top and bottom edges of the bulkheads and mild steel section shall haped to correspond to the camber of the pavement at the joint. If considered convenient, tw iece split bulkheads may also be used. When dowel bars are provided, bulkheads shall be used airs, one at the joint location, and the other some distance away to hold the projecting ends of t owel bars to maintain their alignment. For cases where dowel bars are not provided, one sing ulkhead without holes will be adequate.

The bulkheads shall be securely staked in place at right angles to the centre line a urface of the pavement with sufficient stakes to hold them in the specified position.

After the concrete has sufficiently hardened the mild steel metal section shall be remov arefully without disturbing the edges. The edges shall then be rounded with an edging tool. F acilitating removal of the mild steel section as well as edging operation, the top of the section m e flared on both sides with the required curvature of a rounded edge.

Under no circumstances shall any concrete be left above the expansion 'joint filler cross the joint at any point. Any concrete spanning the ends of the joint next to the forms shall arefully cut away after the forms are removed.

b. Transverse contraction joints - These shall be placed as shown on the drawing and shall be he weakened plane or "dummy" groove type. They shall be constructed by forming in the surface he slab a slot not less than 6 mm wide and having a depth equal to one -third to one -fourth t epth of the pavement at the thinnest part of its section. This slot may be formed in a mann pproved by the engineer such as by pushing into the concrete a flat bar or the web of a "T" bar usi suitable vibratory device, removing the bar, and keeping the slot open. It shall be ensured that palling of concrete occurs while removing the bar. The edges of the joint shall be rounded with dging tool before the concrete hardens.

c. Transverse construction joints - These shall be placed whenever placing of concrete uspended for more than 30 minutes. Excepting in the case of emergency, construction shall alwa e suspended at the regular site of expansion or contraction joints. If the construction joint is locat t the site of an expansion joint, regular expansion joint shall be provided; if at the site of ontraction joint or otherwise, the construction joint shall be of butt type with dowels.

At all construction joints, bulkhead shall be used to retain the concrete and care shall aken in striking off and finishing the surface to the top face of the bulkhead. When work is resume he surface of concrete laid subsequently, shall conform to the grade and cross -section of previou aid pavement, and a straight edge 3m in length shall be used parallel to the centre line, to check a eviation in the surface of the two sections. Any deviation from the general surface in excess o nm shall be corrected.

Longitudinal joints

These shall be of the plain butt type and shall be formed by placing the concrete against t ace of the slab concreted earlier. The face of the slab concreted earlier, shall be painted w itumen before placing of fresh concrete.

Tie bars shall be used at longitudinal joints and they shall be of the dimensions and pacing shown in the construction drawing. Tie bars shall be supported so as not to be displac uring construction operations. Tie bars shall be bonded in the slabs across longitudinal joints, a whilst casting the first slabs, they may be bent so that one end of them lies along the forms. Aft emoval of the forms, bars shall be straightened so that they extend into the concrete placed on t ther side of the joint.

Construction

a. Storage and handling of cement

Cement shall not be stored for a long time and should be used normally within six mont f its date of receipt. Even during this period of storage it is essential that cement shall be protect rom moisture by storing it in suitable sheds. Storage shed with a concrete floor laid on a wel rained foundation may be satisfactory. Cement in bags shall be stored on boards raised above t

oor level for the purpose of ventilation, and the bags shall not touch the walls of the shed. Differe
onsignments should be separately stacked and used in order in which they have been receive
When bulk supply cement is used, special storage facilities such as covered hopper bins will
equired. Supply of cement should be co-coordinated with its consumption so that it is not stor
ight through the rainy season, when normally concreting is discontinued. Cement having lum
which have been caused due to improper storage or by pressure due to over -loading of bags shall n
e considered for use unless these lumps can be easily powdered with pressure between finge
efore such cement is used, representative sample containing also the lumps in fair proportion sh
e taken and tested as per IS - 269 -1976, 8112 -1976, 1489 -1976, 455 -1967 or 8041E -1976 as t
ase my be, to fulfill the minimum requirements.

b. Storage and handling of aggregates

The location and preparation of sites, minimum size of stack and the methods adopted
umping and stacking to prevent segregation of coarse and fine material shall be subject to t
pproval of the engineer. Aggregates from different sources and/or of different grading shall not
tacked together. Each separate size of coarse aggregate shall be stacked separately. The storing
ggregates upon the carriageway or shoulders shall not be permitted.

If aggregates are stored in conical stacks, segregation will be increased by the rolling
he coarser particles down the sides of the stacks. To avoid this, stacks should be built up
pproximately horizontal layers. Dry fine aggregate segregates and gets blown away easily it may
elpful to moisten it. To assist in controlling the water/cement ratio, large fluctuations in t
oisture content of aggregates may be reduced by storing the bulk of the material well in advance
se. For this purpose, all washed aggregates shall be stacked for draining at least 12 hours befo
eing batched. It is also a good practice to reserve the bottom 150 -300 mm or so of the stacks as
rainage layer. Where this cannot be done, the aggregates should not be placed on the ground.
uch case, somewhat raised planks, metal sheets or concrete base should be provided and laid
lopes.

The aggregates shall be handled from the stacks and fed into the mixer in such a manr
s to secure the stipulated grading of the material. Aggregates that have become mixed with ea
r other foreign material shall not be used. They shall be washed clean before use.

c. Batching of materials

All batching of materials shall be by weight or volume as approved by the Engineer. t
roportion of ingredients shall be as specified in the item of work in Bill of Quantities, The Engine
ay permit the use of fractional bags of cement provided they are accurately weighed and a
andled in a manner meeting with his approval. Water may be measured by volume. It shou
owever, be borne in mind that weigh batching is definitely much more desirable than volu
atching. If batching by volume is permitted, as a special case, separate measuring boxes shall
rovided for the different aggregates. The boxes shall be of strong construction provided with hand
or convenient lifting and loading into the mixer. They shall be of such size that it should be possib
o measure out the requisite quantity of aggregate per batch in whole box or by multiples thereof a
apable of being lifted by two men. Each box shall be provided with a straight edge of requir

ength for striking off after filling. If so directed by the engineer, improved facilities such as tippi
oxes of accurate capacity working on run -out rails arranged for direct delivery into the hopper of t
ixer shall be provided by the construction agency. In volume batching, suitable allowance shall
nade for the hulking of fine aggregate due to the presence of water. For this purpose the bulki
hall be determined as per relevant Indian Standard Specification.

d. Mixing

General - The mixing of concrete shall be done in a batch mixer of approved type, which w
nsure a uniform distribution of materials throughout the mass, so that the mix is uniform in colo
nd homogeneous. All concrete shall be mixed in quantities for immediate use.

The mixer shall be equipped with approved water -measuring device capable of accura
easurement of water required per batch. The mixer shall preferably be equipped with
echanically operated pump for filling the mixer tank.

The mixer, if so specified, shall be equipped with an approved timing device which w
utomatically lock the discharge lever during the full time of mixing and release it at the end of t
ixing period; the device shall also be equipped with a ball, adjusted to ring each time the lock
eleased. If the timing device gets broken, the mixer will be permitted to be used while the same
eing repaired, provided an approved time -piece equipped with minute and second bands
rovided. Each batch shall be mixed for at least one and a half minutes. Spilling of the materials
ither end of the mixer shall be corrected by reducing the size of the batch and in no case shall t
olume of the mixed material per batch exceed the manufacturers guaranteed capacity of the mix
he type, size and number of mixers shall be so chosen as to provide the required output witho
verloading. The mixing speed of the drum shall not be less than 15 revolutions per minute nor t
eripheral speed of the drum greater than 60 m per minute. The batch of cement, fine aggregate a
oarse aggregate shall be fed into the mixer simultaneously with the water being introduced either
he same time or before the dry materials. The entire contents of the drum shall be discharged befo
ny materials are placed therein for the succeeding batch.

The skip shall be so maintained and operated that each batch will be complete
ischarged into the mixing drum at the loading of the mixer. The mixer shall be cleaned at suitab
ntervals while in use.

Pick -up and throw -over blades in the drum of the miner which are worn down 20 mm or mo
n depth shall be replaced with new blades.

(i). Time of mixing - The mixing of each batch will continue not less than one and half minu
fter all the materials are discharged into the mixer.

(ii). Re-tempering - The re-tempering of concrete i.e. remixing with or without addition
ement, aggregate or water shall not be permitted.

Control of workability and strength

a. Workability of concrete - The workability of concrete shall be checked by performing "slum

est" or "compacting factor test" in accordance with IS ; 1199 -1959 “Method of Sampling and Analy
f Concrete." The frequency of testing shall be one test per 10 m3 of concrete and the permissib
olerances from the specified value for workability shall be -

Slump	± 12 mm
Compacting factor	± 0.03

Where variations beyond the permitted tolerances are observed, necessary adjustment shall
nade keeping the water cement ratio same.

b. Strength of concrete - The strength of concrete shall be determined either by compressive
exural strength tests (preferably the latter, since concrete pavements are designed on the basis
exural strength of concrete) depending on the facilities available. For this purpose, during t
rogress of the work, cube/beam samples shall be cast for testing at 7 and 28 days. Sampling a
esting shall be done in accordance with IS - 1199 -1959 “Method of Sampling and Analysis
Concrete" and IS - 516 -1959 "Method of Test for Strength of Concrete" respectively. The minimu
requency of samples shall be 3 cube/beam samples for each age of 7 and 28 days for every 30 m3
oncrete.

On a paving job, the strength of concrete should be continuously monitored to ensure th
he desired strength is achieved. In certain -cases, because of change in the source of cement
ontrol or climatic factors, the strength may show some variations, which would require re -designi
f the mix.

Transporting and placing of concrete - The concrete shall be mixed in quantities required
mmediate use and shall be deposited on the sub -base to the required depth and width of t
avement section, in successive batches and in continuous operation without the use of intermedia
orms or bulk -heads between joints. Care shall be taken to see that no segregation of materi
esults whilst the concrete is being transported from the mixer to the place where it is deposited. T
sual method of transport of concrete in India is in pans as head loads or in small wheel barrows. T
preading shall be as uniform as possible to avoid re-handling of the concrete. Where, however
ertain amount of re -distribution is necessary, it shall be done with shovels and not with rakes. Wh
eing placed, the concrete shall be tamped with suitable tools for slab thicknesses of 12.5 cm a
ess so that formation of voids or honeycomb pockets is prevented. The concrete shall be particula
well placed and tapped against the forms and along all joints, For higher thicknesses an intern
ibrator shall be employed in lieu of rodding of the concrete. To effect adequate compaction, t
oncrete shall be placed with appropriate surcharge over the final slab thickness. The amount
urcharge will depend on the mode of placement of concrete and shall be determined by trial.
eneral, the required surcharge is about 20 per cent of the required slab thickness. Any portion of t
atch of concrete that becomes segregated while depositing it on sub-grade shall be thorough
nixed with the main body of the batch during the process of spreading. In case of unavoidal
nterruption, a full depth transverse joint shall be made at the point of stoppage of work provided t
ection on which the work has been suspended is about 2 to 3 hours long. In placing of concrete
wo course construction, necessitated by either positioning of the reinforcement, a richer mix for t
wearing surface, or when thickness of the concrete is beyond 20 cm, the bottom layer of concre

hall be struck off to the required levels by a vibrating screed working on the side forms with notch orresponding to the depth of the top course of concrete.

The vibrating screed should have a vibrating unit mounted on it similar to that of t creed used for compaction of the final surface of concrete. The time lag between laying of the tw ourses shall not exceed the initial setting time of cement.

Placement of steel

a. Reinforcement - Reinforcing steel shall be free from dirt, scale or other foreign matter a ust of such degree or development as to impair bond of the steel with the concrete. The width abric sheets or bar mats shall be such that when properly placed into the work the extrem ongitudinal bars or wires of the sheets or mats will be located not less than 50 mm and not mo han 100 mm from the edges of the slab. Except for dummy joints, the length of fabric sheets or b nats shall be such that when properly placed into the work, the reinforcement will be clear ransverse joints by not less than 50 mm and not more than 100 mm as measured from the centre he Joint to the ends of longitudinal bars or wires of the sheet or mat.

While overlapping the sheets or mats in either direction, the overlap shall be at lea qual to the spacing between the bars or wires in the respective direction or 40 times the diameter he bar or wire, whichever is more.

Whilst using reinforcement in one layer, the concrete shall be placed in two stages. T nitial layer shall be uniformly struck off to a depth corresponding to the reinforcement shown in t rawings and lightly compacted by a screed to obtain uniform levels. The reinforcing fabric sheet ar mat shall then be placed on the compacted layer of concrete and remaining depth shall be fill n with concrete thereafter.

In doing this operation, the initial layer of concrete shall be struck off to the entire width he slabs and of sufficient length to permit sheet or mat of reinforcement to be laid full length witho urther manipulations of the reinforcement. Displacement of the reinforcement during concreti perations shall be prevented.

. Load transfer devices - dowels - Transverse expansion joints shall be equipped with dowels of t imension and at the spacing and location indicated on the drawing. They shall be firmly support n place, accurately aligned parallel to the sub-grade/sub -base, parallel to each other and parallel he centre line of the pavement, by means of appropriate dowel supports. The dowel supports sh nsure that the dowels are not displaced during construction. The permissible tolerances in dow ar alignment in both vertical and horizontal directions shall be ±1 mm in 100 mm for dowels 0 mm and smaller diameters and ±0.5 mm in 100 mm for. dowels of diameter greater than 20 m One -half of each dowel shall be painted with a thin film of bitumen and equipped with a tight fitti netal sleeve of the dimensions shown on the drawing to provide space for the dowel when paveme xpands and the join closes. This sleeve shall be partly filled with cotton waste to prevent it bei ushed too far on the dowel during construction.

These sleeves are not required on dowels, if used, in dummy contraction or constructi oints.

c. Tie bars - Tie bars provided in longitudinal joints of plain butt type to prevent opening of su
oints shall be bonded to the adjacent slabs on both sides of the longitudinal joint. They are install
y providing appropriate (drilled) holes in the side forms depending on the size and spacing of ba
hey are bent aside temporarily to avoid obstruction to construction traffic and straightened later
he time of laying of slab in the adjacent lane.

Compaction and finishing

Compaction - The pavement shall be compacted either by means of a power-driven pave
um -finisher or by a vibrating screed along with internal vibrators where the slab thickness is mo
han 12.5 cm. For lesser thicknesses vibrating screed may be supplemented with manual rodding. F
reas where the width of the slab is very small as at the corner of street junctions, etc. compacti
ith wooden hand tampers may be adopted subject to the approval of the engineer. In no cas
owever, hand compaction shall be permitted for slab thicknesses beyond 10 cm. All compaction sh
e done in accordance with the following requirements –

(i) Where hand tamping is permitted as a special case –

(i) Concrete with surcharge, as soon as placed, shall be struck off uniformly and screened,
uch level above the base that when compacted and finished, the pavement shall conform to t
rade and cross -section indicated by the plans. The entire surface shall then be tamped and t
amping operation continued until a close knit dense surface is obtained.

(ii) The tamper shall rest on the side forms and shall be drawn ahead with a sawing motion,
ombination with a series of lifts and drops alternating with lateral shifts, the aim of this operati
eing compaction and screeding to the approximate level required. Subsequent tamping shou
dvance about 75 mm at a time in the direction in which the work is proceeding, and in the fi
tages tamping should be closer, about 12 mm at a time until a level and dense surface is obtained.

(iii) Segregated particles of coarse aggregate which collect in front of the tamper or screed sh
e thrown outside the forms or thoroughly mixed by hand with the un compacted mass of concre
lready placed. Under no circumstances shall such segregate particles be carried forward and push
n to the base in front of the mass.

(iv) Compaction by tamping or screeding shall be carried on till the mortar in the mix just wor
p to the surface. Care shall be exercised and the operation of tamping so controlled as to prevent
xcess of mortar and water from being worked on to the top. Repeated operation other than to secu
he necessary compaction and to eliminate voids shall be avoided.

(v) Immediately after the tamping or screeding has been completed and before the concre
as hardened, While the concrete is still in a plastic stage, the surface shall be inspected
rregularities with a profile checking template and any needed correction made by adding or removi
oncrete followed by further compaction and finishing.

Floating - As soon as practicable after the concrete has been compacted, its surface shall
moothened by means of a longitudinal float, operated from a foot -bridge. The longitudinal float sh
e worked with a sawing motion, while held in a floating position parallel to the carriageway cent

ne and passed gradually from one side of the pavement to the other. Movements ahead along t
entre line of the carriageway shall be in successive advances of not more than one half the length
ne float.

Straight-edging - After the longitudinal floating has been completed and excess water h
isappeared, but while the concrete is still plastic, the slab surface shall be tested for trueness with
m straight edge. The straight edge shall be held in successive positions parallel to the road cent
ne in contact with the surface and the whole area gone over from one side of the slab to the oth
dvance along the road shall be in successive stages of not more than one -half length of the straig
dge. Any area of depression found shall be scooped to a depth of 4 -5 cm, filled immediately w
reshly mixed concrete, struck, compacted, and re-finished. High areas shall be cut down a
efinished. The straight edging and re-floating shall continue until the entire surface is found to
ree from observable departures from the straight edge and the slab has the required grade a
amber.

The slab surface shall be retested for trueness, before the concrete begins to set, with t
m long master straight edge and the graduated wedge gauge.

The straight edge shall be placed on the surface in successive positions, parallel to t
arriageway centre line. Irregularities shall be measured with the help of the wedge gauge mov
ransversely at various points until it touches both the straight edge and the concrete surface.

At any point tested the concrete shall not show a departure greater than 3 mm from t
rue surface. If at any place the departure exceeds this value not more than 3 passes of the vibrati
creed shall be allowed and the surface tested again in the specified manner. If the irregularity s
xceeds the limit aforesaid, the concrete shall be removed to a depth of 50 mm or up to the t
urface of the reinforcement, if any. The area of concrete to be removed shall be demarcated by t
ength of the straight edge in the position of measurement across the full width of the slab. Where t
oint of measurement in default is less than 4.5m from the nearest transverse expansion joint, t
hole area upto the joint shall be removed to the required depth. The concrete so removed shall n
e re -used in the carriageway. Fresh concrete shall be placed, compacted and finished in t
anner already described in these specifications and shall again be subject to test for accuracy
nish.

The foregoing procedure shall be adopted at each shifting of the straight edge and t
hole area shall be gone over from one side of the slab to the other. The straight edge shall advan
ongitudinally in successive stages of not more than one -half the length of the straight edge.

No extra payment shall be made for the removal of the rejected concrete and or layi
resh concrete.

Although the concrete may be removed immediately following measurement of t
rregularity and while it is still wet, this shall not mean any waiver from complying with t
equirements of this clause, if for any reason the concrete to be removed has already hardened.

After straight edging of the surface, it shall be finished by brooming in the mann
escribed as mentioned in the following paragraphs.

Brooming - After belting and as soon as surplus water if any has risen to the surface, t
avement shall be given a broom finish with an approved long handled steel or fiber broo
onforming to the stipulations laid down in JRC - 43 -1972. The broom shall be pulled gently ov
he surface of the pavement from edge to edge. Adjacent strokes shall be slightly overlappe
rooming shall be' perpendicular to the centre line of the pavement and so executed that t
orrugations thus produced will be uniform in character and width, and about 5mm deep. Broomi
hall be completed before the concrete reaches such a stage that the surface is likely to be torn
nduly roughened by the operation. The broomed surface shall be free from porous or rough spo
rregularities, depressions and small pockets, such as may be caused by accidentally disturbing t
articles of coarse aggregate embedded near the surface.

Curing of concrete - Immediately after the finishing operations have been completed the ent
urface of the newly laid concrete shall be covered against rapid drying, and cured. Failure
rovide sufficient cover material of the stipulated type or inadequate supplies of water for curing sh
e adequate cause for immediate suspension of concreting operations.

Initial curing - After completion of the finishing operations, the surface of the pavement shall
ntirely covered with wet hessian cloth, burlap or jute mats. The coverings used shall be of su
ength (or width) that when laid will extend at least 500 mm beyond the edges of the slab, shall be
laced that the entire surface and both the edges of the slab are completely covered. They shall
laced as soon as the concrete has set sufficiently to prevent marring of the surface. Prior to th
eing placed, the coverings shall be thoroughly wetted with water and placed with the wettest si
own. They shall be so weighed down as to cause them to remain in intimate contact with t
urface covered. They shall be maintained fully wetted and in position for 24 hours after the concre
as been placed, or until the concrete is sufficiently hard to be walked upon without suffering a
amage. To maintain the coverings wet, water shall be gently sprayed so as to avoid damage to t
resh concrete. If it becomes necessary to remove the coverings for any reason, the concrete sl
hall not be kept exposed for a period of more than half an hour.

Worn coverings or coverings with holes shall not be permitted. Coverings reclaimed fro
revious use other than curing concrete shall be thoroughly washed prior to use 'for curing purpos
f the covering is furnished in strips, the strips shall be laid to overlap at least 150 mm.

Covering shall be placed from suitable wooden bridges (IRC -43 -1972). Walking
reshly laid concrete to facilitate placing coverings shall not be permitted.

Final curing - Upon the removal of the covering the slab shall be thoroughly wetted and th
ured by one of the following methods of final curing -

(a) Curing with wet earth - Exposed edges of the slab shall be banked with a substantial ber
f earth. Upon the slab shall then be laid a system of transverse and longitudinal dykes of clay abo
0 mm high, covered with a blanket of sandy soil free from stones to prevent the drying up a
racking of clay. The rest of the slab shall then be covered with sufficient sandy soil so as to produ
blanket of earth not less than 40 mm depth after wetting. The earth covering shall be thorough
vetted while it is being placed on the surface and against the sides of the slab and kept thorough
aturated with water for 14 days and thoroughly wetted down during the morning of the 15th day a

hall thereafter remain in place until the concrete has attained the required strength and permissi
s given to open the pavement to traffic. When such permission is granted, the covering shall
emoved and the pavement swept clean. If the earth covering becomes displaced during the curi
eriod, it shall be replaced to the original depth and re -saturated,

Removing forms - Forms shall not be removed from freshly placed concrete until it has set, or
east 12 hours, whichever is later. They shall be carefully removed in such a manner that no dama
s done to the edges of the pavement. After the forms have been removed, the slab edges shall
leaned and any limited honey -combed areas pointed up with 1 -2 cement sand mortar, after whi
he sides of the slab shall be covered with earth to the level of the top of the slab for final curing Sla
ith excessive honey -combing as a result of inadequate compaction shall be removed betwe
earest transverse joints.

Concreting during monsoon months - When concrete is being placed during monsoon mont
nd when it may be expected to rain, sufficient supply of tarpaulins or other waterproof cloth shall
rovided along the line of work. Any time when it rains, all freshly laid concrete, which has not be
overed for curing purposes, shall be adequately protected by means of tarpaulins or oth
aterproof cloth. Any concrete damaged by rain shall be removed and replaced.

Concreting in hot weather - As placing of concrete in air temperatures above 40°C, or abo
5°C combined with relative humidity below 25 percent and/or wind velocity higher than 10 km/ho
s attended with defects like loss of workability through accelerated setting, formation of plas
hrinkage cracks, etc., it is recommended that unless adequate precautions are taken, no concreti
hall be done in conditions more severe than the above. The procedures recommended for adopti
n case of hot weather concreting is given in IRC - 61 -1976 “Tentative Guidelines for the Constructi
f Cement Concrete Pavements in Hot Weather." Brief details of the procedure are given belo
ggregates, cement and water shall be protected from the direct sun and mixing operations shall a
e carried out in shade. In addition portable shelters shall be provided to protect the concrete duri
lacing and finishing operations. This may be in the form of gable frames to cover the full length
he concrete pavement laid in a day. The surfaces of the formwork and subgrade coming in conta
ith concrete shall be moistened prior to placing of the concrete to prevent absorption of mixi
ater.

Since the setting time of concrete is considerably reduced under such temperatur
abour force shall be reinforced to minimise the time between mixing and placing of concrete. T
rotective cover shall be adequate to exclude exposure of the concrete directly to the sun and a
liminate contact with drying winds. Prior to removal of the portable shelters, the hardened concre
hall be covered with wet hessian or burlap or the like followed by one of the usual methods of curi
ke ponding, etc. In addition, the moist curing period shall be extended to 4 weeks.

. Work on gradients - The progress on gradient of all operations of placing, compacting a
nishing of concrete should proceed from the lower to the higher reaches. The concrete mix shall
tiffer than that used on level reaches.

Protection of concrete - Suitable barricades shall be erected and maintained and watchm
mployed to exclude traffic from the newly constructed pavement for the period herein prescribe

nd these barriers shall be so arranged as not in any way to interfere with or impede traffic on a ane intended to be kept open and necessary signs and lights shall be maintained clearly indicati ny lanes open to the traffic. Where, as shown on the plans or indicated in the special provisions, it ecessary to provide for traffic across the pavement, suitable and substantial crossings to brid ver the concrete shall have to be provided. Such crossings, as constructed, shall be adequate f he traffic and approved by the Engineer.

Any part of the pavement damaged by traffic or other causes occurring prior to its fi cceptance shall be repaired or replaced in a manner satisfactory to the Engineer. The paveme hall be protected against all traffic usage including that of construction -traffic.

Sealing of joints - After the curing period is over and before the pavement is opened to traff he temporary seal and all other intruded materials in the transverse expansion and contraction joi s well as longitudinal joints shall be removed completely and the groove; filled with the approv oint sealing compound as per IRC - 57 -1974 "Recommended Practice for Sealing of Joints in Concre avements". The joint opening shall be thoroughly cleared of all foreign matter before the prim llowed by sealing material is placed. If necessary, the foreign matter shall be blown out ompressed air pressure. All contact faces of the joint shall be cleaned with a wire brush to remo ose material and shall be surface dried before the primer is applied.

Opening to traffic - In general, traffic shall be excluded from the newly constructed paveme or a period of 28 days where Ordinary Portland Cement, Portland Blast Furnace Slag Cement a ortland Pozzolona Cement are used, or for a period of 7 days where Rapid Hardening Cement sed. In all cases, before the pavement is opened to traffic it shall be cleaned and the joints shall ealed.

General Civil Specifications:

he following civil specifications shall be applicable for providing and executing all such items whi re not mentioned in foregoing paras but are necessary to be provided and for the items in bill uantities which are mentioned above but require some elaboration. No extra cost shall be paid f uch items. It should clearly be understood by the Contractors / tendering firms that all ci pecifications mentioned here below shall be treated as part of the technical specifications alrea nentioned. The specific requirement of different items of work involved in the constructio ompletion and commissioning of the system as a whole, shall be provided in accordance with t equirement given in these civil specifications.

ite Clearance

Before taking up construction, site shall be cleared of all jungles, bushes and unwant egetation growth. After completion of plant, the entire site area shall be cleared of all left ov naterial and debris. The work shall be carried out in accordance with the specifications in bill uantities and payment shall be as per quoted rates for the respective items.

Sections for excavation for all underground structures and pipe lines

Contractor shall prepare sectional drawings showing the details of excavation for
nderground structures and pipe lines, in all kinds of soils, boulders, soft and hard rock etc., based
est results of soil testing and investigation reports complying to specifications in clause 2.0 to 2.
or earthwork excavations and shall submit to the Engineer for review and approval, prior to starti
f the work. If during excavation any change in section is considered necessary for reasons of safe
f workers, the Engineer will issue directions for compliance by the Contractor. The Contractor sh
omply with the Engineer's directions without any extra charge or payment.

Form Work

Formwork, shuttering, centering, scaffolding etc., shall be of steel plates or plywood, lined w
MS-sheets and for scaffolding steel tubular shall be used. Joints should be sufficiently tied to preve
oss of cement slurry from the concrete. All forms, shuttering shall be levelled, aligned, a
horoughly cleaned, before they are used for concreting. Formwork shall be removed after specifi
ays of curing with the prior written permission of the Engineer. The surface of RCC after removal
ormwork / shuttering shall be smooth and even and without honeycombing or undulations.

rocedure and Materials used in concrete works.

he procedure for concrete works shall be in accordance with the specifications in the bill
uantities, specifications in this section and complying to standard practices in IS:456-2000 w
atest amendments, all concrete works shall be executed in accordance with standard practic
ncluding volumetric batching using boxes of standard size, concrete mixers with hopper, compacti
sing vibrators and according to the directions of the Engineer In-charge of works.

ggregates.

ll aggregates, fine and course used in concreting works shall comply to the standards laid down in
56-2000 with latest amendments and specifications in applicable clauses in this section.

Water.

he water used in all concreting works shall be of potable quality and tested before usage in t
onstruction works and shall be confirming to IS: 456-2000.

Cement.

he cement used shall be of sulphate resisting cement confirming to IS: 12330 as specified and whe
ver the concrete is coming in contact with sewage. For other concreting works like encasing pip
edestals and other structures where there is no contact with sewage, it shall be OPC confirming
S:8112 with latest amendments and revisions.

Minimum clear cover over Reinforcement

Minimum clear cover over the steel reinforcement shall be 50mm for the members contact w
oil/ground water. For other faces the clear cover over the reinforcement shall be as per latest
Codes.

Tested Steel

Only tested and approved steel shall be used for reinforcement in RCC works, and the Contractor sh
roduce the test certificates to the Engineer. The type of steel used shall be of TMT of grade of ste
e: 500 confirming to relevant IS.

Restoration of Storm water drains & other Miscellaneous works.

The storm water drains and cover slabs damaged during execution of works which is not due to t
egligence of the contractor as decided by the Engineer shall be restored as per the items in bill
uantities. The specifications in this section are deemed to govern the applicable items in the bill
uantities. All masonry works, concrete works shall be in accordance with relevant IS as mentioned
lause 1.2.6. of this section and or as directed by the Engineer. Other repairs works under headi
Miscellaneous works" in bill of quantities shall be executed in accordance with the specifications a
s directed by the Engineer, the finished item of work shall give neat appearance and should ser
he intended purpose of the component to the satisfaction of the Engineer.

Disposal of night soil.

The night soil from the existing soak pits shall be cleared and desilted by the bidder includi
ackfilling of the pits to required compaction, handling, salvaging and disposal of night soil /sludge
uitable site should be identified by the Contractor & approver by the Engineer, for safe disposal
ewage /silt / sludge removed (preferably approved sludge disposal sites of STPs), excavations at t
umping / lifting station sites, which should be away from the water bodies, residential & sensiti
reas, agricultural areas and etc. The costs towards removing handling & disposal of night soi
ludge shall be borne by the contractor & is deemed to be included in the quoted offer of the Bidd
f required & certified by the Engineer, sewer cleaning machine will be provided free of cost,
ucking the sewage from soak pit, As soon as the work at the soak pit is completed the pit shall
lled with earth in layers not exceeding 15 cm, each layer shall be watered, rammed & prope
onsolidated before the succeeding one is laid. Each layer shall be consolidated to the requir
tandard specification. The final backfill surface shall be trimmed & levelled as directed by t
ngineer in charge.

TRAINING AFTER COMMISSIONING & DEFECT LIABILITY PERIOD : NA

TRIAL RUN OF THE SYSTEM

fter commissioning of works, the contractor shall maintain the works for 3 (three) months to demonstra
atisfactory performance to the Engineer prior to taking over by the Employer. The cost of electricity
equired for operation & maintenance of works during the period of this trial run will be borne by the Employ
he cost towards Contractors Engineer and other operating personnel during the said period of trial run, alo
ith cost of tools and spare parts which are required for operation and maintenance of the works a
quipment during the trial run period shall be borne by the Contractor and shall be included in the quoted
rice. In the event that the system or any of the facilities do not satisfactorily achieve the requir
erformance standards during this period, the trial run period shall be extended until such time as t
ontractor has satisfactorily rectified any deficiencies as may be necessary to satisfy the performan
equirements. No additional compensation will be paid to the Contractor for such extension.

DEFECTS LIABILITY PERIOD

During 12 month Defects Liability period, the Contractor has to set right the defects of any ki
n the manufacture, laying and jointing of sewer lines and its appurtenants works, other civil a
nechanical works in his scope including replacement of defective items, labour and technical servic
f required and also making good the restored road surface as mentioned above in case
ettlement.Contractor shall be responsible to monitor and ensure the successful performance of t
ystem throughout the Defects Liability Period, and shall be responsible to ensure that the Employe
ersonnel are provided with on-the-job training as may be necessary to ensure uninterrupt
atisfactory Performance of the system and facilities by the Employer's Personnel after completion
he contract Period

Executive Engineer
South West-1 Water Supply & Sanitary Division
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35th cross, 4th T block, Jayanagar,
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SECTION 7: DRAWINGS (will be Uploaded Separately)

Executive Engineer,
South West-1 Water Supply & Sanitary Division
BWSSB, Kapila Bhavan, 11th main, 35th cross
4th T Block, Jayanagar, Bangalore-560041

SECTION 8: BILL OF QUANTITIES

				Rate (Rs)		
Sl. No	Description of item (with brief specification and reference to Book of specification)	Quantity	Unit	In figures	In words	Amount (Rs)
Total Tender Price (in figures)						
(in words)						

Note:

(1) Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities (refer: ITB Clause 11.2 and CC Clause 37.2).

(2) Unit rates and prices shall be quoted by the Tenderer in Indian Rupees.

(3) Where there is a discrepancy between the rate in figures and words, the lower of the two will govern. [ITB Clause 24.1(a)]

(4) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall govern [ITB Clause 24.1 (b)]

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4th T Block, Jayanagar, Bangalore-560041

SECTION 9: FORMAT OF BANK GUARANTEE FOR SECURITY DEPOSIT

To: _____ [name of Employer]
_____ [address of Employer]

WHEREAS _____ [name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ [name of Contract and brief description of Works] (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Rs._____ [amount of guarantee] [19] Rupees_____[in words], and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee][20]as aforesaid

[19] An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract
[20] An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract

without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 30 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

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SECTION 8: BILL OF QUANTITIES

				Rate (Rs)		
Sl. No	Description of item (with brief specification and reference to Book of specification)	Quantity	Unit	In figures	In words	Amount (Rs)

Total Tender Price (in figures)						
(in words)						

Note:

(2) Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities (refer: ITB Clause 11.2 and CC Clause 37.2).

(2) Unit rates and prices shall be quoted by the Tenderer in Indian Rupees.

(3) Where there is a discrepancy between the rate in figures and words, the lower of the two will govern. [ITB Clause 24.1(a)]

(4) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall govern [ITB Clause 24.1 (b)]

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AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Rs._____ [amount of guarantee] [21] Rupees_____[in words], and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee][22]as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 30 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

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[21] An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract
[22] An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract